



THE SWELLED LEG

*Read before the Mexico-Chirurgical Society
April 1st, 1841. From the Edinburgh Medical Journal.*

The occurrence of a peculiar swelling, usually, although by no means limb, in the course of the continued more strictly speaking, as a sequela to all physicians who have had consideration with typhus than with typhoid fever, but it is not limited in its occurrence a precisely similar condition of the limb likewise as a sequela of a state of lasting for many days, but in none resembling any of the recognised forms.

The swelled leg, to the pathology of which will be specially addressed, has relation to fevers, and to that history devote a few remarks.

In the work of Drs. Barker and C. Fever of Ireland, in the years 1817 there is the earliest reference which I know of the occurrence of swelled leg as a sequela is precise, inasmuch as the evidence is contradistinction to *anasarca*, which occurred, and to *dropsical swellings*.

XXV.

THE SWELLED LEG OF FEVERS.

(*Read before the Medico-Chirurgical Society of Edinburgh, 9th June, and reprinted from the 'Edinburgh Medical Journal' for September, 1872.*)

THE occurrence of a peculiar swelling of the lower extremities, usually, although by no means invariably, confined to one limb, in the course of the continued fevers of this country, or, more strictly speaking, as a sequela of such fevers, is familiar to all physicians who have had considerable experience of these diseases. The affection in question is more common in connection with typhus than with typhoid or any other form of fever, but it is not limited in its occurrence to fevers; I have observed a precisely similar condition of the lower limb in pleurisy, and likewise as a sequela of a state of constitutional disturbance lasting for many days, but in none of its leading features resembling any of the recognised forms of continued fever.

The swelled leg, to the pathology of which this communication will be specially addressed, has a history of its own in relation to fevers, and to that history I shall in the first place devote a few remarks.

In the work of Drs. Barker and Chyne on the 'Epidemic Fever of Ireland' in the years 1817-19, published in 1821, there is the earliest reference which I have been able to find to the occurrence of swelled leg as a sequela of fever. This reference is precise, inasmuch as the enlargement is reported in contradistinction to anasarca, which is also stated to have occurred, and to dropsical swellings, which not unfrequently

succeeded recovery from fever. "A swelling of one leg," remark these authors, on the testimony of Dr. Nevin, "was frequently observed at Downpatrick."¹ Again, in reporting the experience of physicians in the Province of Leinster, Drs. Barker and Cheyne observe, "with respect to the sequelæ of the fever, the most remarkable were pulmonary consumption and dropsy; next to these in frequency were chronic rheumatism, mania, or amentia, paralysis, hysteria, and an affection resembling phlegmasia dolens, but not confined to the female sex, which was observed in the fever hospitals both of Dublin and Kilkenny."² Some years subsequently to the publication of Drs. Barker and Cheyne's work, there appeared a paper by Dr. Tweedie, of London, in the 'Edinburgh Medical and Surgical Journal,' in which attention was called in a more particular manner than had previously been the case to the swelling of the lower extremity after fever.³ Dr. Tweedie at that time attributed the swelling to inflammation of the areolar tissue, and made no reference to the state of the veins in the affected limb. The former view of the pathology of the swelling he thought to be rendered probable by the inflammation terminating in two instances in diffuse suppuration. In a more recent publication Dr. Tweedie admits that the swelling may be due to erural phlebitis.⁴ Sir Robert Christison, in treating of the sequelæ of continued fever, has remarked as follows:—"During the early stage of convalescence an affection occasionally presents itself, which resembles the phlegmasia dolens of puerperal women, and is sometimes apt to be mistaken for œdema. It is generally preceded by some general fever. Its symptoms are pain, swelling, tension, heat and glistening whiteness of one limb, extending from the groin downwards,

¹ 'An Account of the Rise, Progress, and Decline of the Fever lately Epidemic in Ireland, together with Communications from Physicians in the Provinces, and various Official Documents.' By F. Barker, M.D., and J. Cheyne, M.D. London and Dublin, 1821. See page 467.

² Op. cit., page 490.

³ 'Observations on a Peculiar Swelling of the Lower Extremity after Fever.' By Alexander Tweedie, M.D., Physician to the London Fever Hospital. Vol. xxx. 1828.

⁴ 'Lectures on the Distinctive Characters, Pathology, and Treatment of Continued Fever.' Delivered at the Royal College of Physicians of London. By Alexander Tweedie, M.D., F.R.S. 1862. See page 293.

with inability to move the limb. It generally ends in resolution and recovery; but amendment takes place slowly, and sometimes it terminates in serous effusion and diffuse suppuration of the intermuscular cellular tissue. It is in all probability a variety of subcutaneous cellular inflammation. Of this affection, which was first described by Dr. Tweedie in 1828 as an occasional sequela of fever in the London Fever Hospital, several characteristic examples occurred in the epidemic of Edinburgh in 1817-20.¹ In the fifth volume of the 'Dublin Hospital Reports'² will be found a paper by the late Dr. Graves and Dr. Stokes, entitled "Painful Swellings of the Lower Extremities." After recording two interesting cases, one characterised by symptoms of intermittent fever, the other of gastric fever, in both of which painful swelling of the leg occurred, these eminent writers observe: "An accurate observation of numerous cases, both of phlegmasia dolens occurring after delivery and of painful swelling of the extremities appearing during or after fever, has satisfied us of the pathological identity of the two diseases. In both œdema occurs, unattended by redness, but accompanied by increase of heat, with great tenderness and pain, and followed for a considerable time by impaired motion of the limb." Several years subsequent to the publication from which I have now quoted, Dr. Graves drew attention to what he styled a very important form of disease which attacks convalescents from fever, and runs a course of remarkable intensity and rapidity.³ He alludes in this second communication to the swelled leg, described by himself and Dr. Stokes as occurring during the epidemic of 1826, but adds that the important and fatal form of the disease which he there delineates did not come under his notice till within a more recent period. A careful perusal of the interesting cases recorded in this connection by Dr. Graves leads to the conclusion that they were instances rather of pyæmia than of ordinary phlegmasia dolens. The record in the "Hospital Notes," of the 'Medical Times and Gazette' for 25th April, 1857, of an instructive case of phlegmasia dolens

¹ 'The Library of Medicine.' Article, "Continued Fever." Vol. i, page 145. 1840.

² 1830. Page 29.

³ 'Clinical Lectures on the Practice of Medicine.' Edition 1864. See pages 198-201.

after fever, by Dr. Risdon Bennett, in which the affection occurring after fever is stated to be of extreme infrequency in London, called forth an interesting letter in the immediately subsequent number of the same journal by Dr. A. P. Stewart,¹ whose name is so justly connected with the discovery of the non-identity of typhus and typhoid fevers. Dr. Stewart, in this letter, remarks : " During the memorable and destructive epidemic of typhus which prevailed in Glasgow from October, 1836, to May, 1838, phlegmasia dolens and purulent deposits in the joints were by no means rare sequelæ of typhus. Though I cannot at present state the number of these cases witnessed by Dr. A. Anderson and myself, having mislaid my clinical notes, I think I am under the mark when I express my conviction that there could not be fewer than eighteen or twenty." The late Dr. A. Anderson of Glasgow, the colleague of Dr. Stewart, alluded to in the letter which has been quoted, has referred in distinct terms to the latter of these sequelæ. " Sometimes a patient will be recovering very well from fever—say from typhus—when he has the rigor which I have described ; and after it he is much worse than you would expect him to be were he only about to take erysipelas. His pulse is exceedingly rapid ; he is exhausted, and in particular complains of pains in his joints, in his ankles, wrists, elbows. He becomes very ill. Asthenia is developed, and the most ominous symptom is jaundice ; his eyes and skin become yellow. There is swelling and redness about the joints, and he has considerable pain when they are touched or moved. These cases all die, and as far as I have seen they die rapidly, with symptoms of poisoning of the blood, like cases of the worst puerperal fever, or pyæmia after surgical operations. I have seen some dozen of them, and upon inspection found the synovial membrane injected with blood and bathed in pus ; pus not the result of ulceration, but the primary secretion from the inflamed membrane, as in purulent ophthalmia."² Dr. Magnus Huss, in recording his large experience of typhus and typhoid fevers, as gathered in the Seraphim Hospital of Stockholm, has observed, regarding local œdema as a sequela : " This affection occurs chiefly in the extremities, especially the lower, commonly on one side, seldom

¹ 'Medical Times and Gazette,' 2nd May, 1857, page 446.

² 'Ten Lectures Introductory to the Study of Fever.' 1861. See page 48.

on both at once. It is caused by coagulation of the blood; that is, the formation of a thrombus in some of the venous trunks leading from the extremity. If the subsequent obstruction be complete, the œdema will be suddenly generated and considerable; otherwise it is smaller and slower in its formation. Distension of the subcutaneous veins commonly accompanies the œdematosus swelling, whether accompanied by pain or not. Except in the cases which will be noticed below, I never saw this state become dangerous in typhus, although it may retard the recovery." "In a few cases (these are the dangerous cases Dr. Huss has referred to) I saw such a thrombus in a venous trunk suppurate, whence all the symptoms which belong to pyæmia resulted, as lobular pneumouia, abscesses, &c."¹ Dr. Murchison, in describing the complications and sequelæ of typhus and typhoid fever, refers to the phlegmasia dolens or white leg. In the experience of Dr. Murchison, this has been a more common sequela of pythogenic or typhoid fever than of typhus. He mentions, that out of nearly seven hundred cases of typhus which came under his care during the epidemic of 1862, the sequela in question did not occur in a single instance.² Dr. MacLagan, of Dundee, in exhibiting the statistics of typhus in the Royal Infirmary of that city, makes no reference to the occurrence of swelled leg as a complication or sequela.³

So much for the history of this affection. From the preceding statement, it is evident that a swelling of the lower extremity different from ordinary œdema or anasarca has been recognised by various physicians as occurring in the advanced stages of

¹ 'Statistics and Treatment of Typhus and Typhoid Fever.' See page 174.

² 'A Treatise on the Continued Fevers of Great Britain.' See pages 186, 504.

³ 'Edinburgh Medical Journal,' August, 1867. Dr. MacLagan has kindly favoured me with the following:—"On referring to my notes, I find that in 1750 cases of typhus, white leg occurred only twice; one of the patients was a man, æt. 25, the other a woman, æt. 20. In over 200 cases of enteric fever, it occurred only once, in a man of 32. I have always regarded the malady as of lymphatic rather than venous origin. It is very possible that the circulation through the veins may be secondarily interfered with by the mechanical pressure of the effusion which takes place from the deeper-seated lymphatics. But as I have never watched a case to the close, I can say nothing from personal experience as to the actual state of either system of vessels."

typhus and typhoid fevers. It may be mentioned here that by no authority has the swelled leg been described as a sequela of relapsing fever.

In my own experience, the swelled leg has occurred in typhus as well as in typhoid, but more frequently in the former. To its existence as a chronic affection, but nevertheless arising out of fever, I am specially anxious to direct attention, because it is under such circumstances I have lately and not unfrequently encountered it. Within the last five years I have, on no fewer than nine occasions, had my attention directed to a chronic swelling of the whole leg, from the inguinal region to the front of the foot, which in the majority of instances, while free from pain, has always been attended by very considerable discomfort. In all of these cases the patients have been unable with any exactitude to account for the swelling, but a careful inquiry into the previous history has satisfied me that in nearly all, one or other of the varieties of continued fever, already referred to, has at one time been in existence, and this was distinctly established in some of the number; or pleurisy, or a form of constitutional disturbance, of which mention merely has been made, but to which I shall have more particularly to refer. In these chronic cases, with a single exception, one limb only has been affected, and in the majority it was the left. In the acute cases which I have been able to watch from their commencement there have been three in which both legs were affected; but in each of these the affection, beginning in one limb—in two, the right—and in the third, the left—seemed to pass from the one to the other; in none of the three was there a simultaneous development of the affection in the two legs; it had declined in that first affected before its presence in the other was observed. In one instance, that of a young lady, which I did not see till the whole of the right leg was very greatly enlarged, but with very little suffering, the affection was described to me as commencing near the foot, and gradually rising upwards to the thigh. Thenceafter, and under my own observation, the left thigh became affected, and the swelling proceeded downwards to the leg and foot. In the acute cases the swelling has subsided in the course of two or three weeks in some; but in others has lasted for a much longer time. In those remarkable examples to which I have referred as chronic

swelled leg, the affection has been in existence for years. One of these, an officer of cavalry, informed me that his right leg had been nearly double the size of his left ever since his convalescence from an acute illness, evidently a continued fever, seven years before I saw him. An elderly gentleman had his left leg enormously swollen since suffering repeated attacks of ague, and one attack of yellow fever fifteen years before his visit to me. A lady upwards of fifty had both legs very greatly swollen since girlhood, and believed that the determining cause of the swelling, which had affected first one limb and then the other, was a low fever, which had seriously as well as permanently impaired her health. In one of the instances of resulting chronic enlargement of the left limb I witnessed the original development of the swelling during the early convalescence from a severe attack of typhus eight years ago, distinguished by the degree of typhomania which had existed during its whole course. The swelling was preceded by uneasiness, followed by great pain in the leg, slight rigors, and renewed feverish disturbance. The enlargement of the calf became very great, and deep-seated suppuration seemed to have occurred in its posterior aspect. The late Dr. Duncan saw this gentleman with me, and his "*tactus eruditus*" left little doubt in his mind that a large collection of matter already existed. He entered his bistoury, guided by that skill for which he was so eminently distinguished, but no pus escaped then, or at any subsequent period of the case. The swelling continued to be of very considerable dimensions for some weeks, and then gradually diminished. The limb, however, remains to this day enlarged, and after fatiguing exercise is apt to become more than ordinarily swollen. The gentleman has had no pain for a lengthened time, is of very active habits, and, with the exception referred to, is in the enjoyment of complete health.

Several years ago I attended professionally a young gentleman of studious habits, and up to that time healthy, who, after exposure to cold, contracted a severe pleurisy on the right side. While exhibiting the symptoms and physical signs of large pleural effusion, a swelling of the limb on the same side, unattended by pain, occurred. The swelling I at first regarded as an ordinary oedema; but this view of its nature was surrendered, as the limb gradually increased from foot to leg, and

from leg to thigh, until it became very greatly enlarged, with notable fulness of the lymphatic glands in the inguinal region. The swelling was white and glistening, did not pit on pressure, and communicated a feeling to the fingers or hand precisely similar to that with which I had already become familiar in the swelled leg of fevers. Meantime the pleural effusion having augmented, and very considerable dyspnoea being occasioned, thoracentesis was had recourse to. The subsequent progress of the case was altogether satisfactory; but the swelled leg, although considerably reduced in size, remained up to the period of this young gentleman's death, which resulted some years afterwards from tubercular disease within the abdomen. I know of other three cases of pleurisy with considerable or large effusion, in which a swelling of the lower limb on the side corresponding to the effusion occurred.¹ Again, I have alluded to the same condition of the lower extremity in connection with a peculiar disturbance of the system, but not resembling fever. It has occurred to me to witness, twice in females, and once in a youth of the other sex, a swelling of the lower extremity identical in its character with the swelled leg of fevers, succeeding no very marked premonitory symptoms, but accompanied by very considerable constitutional disturbance—to wit, failure of appetite, nausea, and feverishness—as well as by pain in the limb. In these instances there existed no other local affection, and they were clearly not examples of idiopathic fever. The swelling continued in each of these for some weeks, and then gradually disappeared. I may mention here that neither in these cases, nor in any of the other and different forms, as I believe them to be, of swelled leg, was there any evidence of renal disorder beyond what is common to every instance of febrile disturbance. There never was albuminuria, and the only change in the urine consisted in its concentration, with more or less increase of lithates.

From the statements already made, and the references to authors which have been adduced, it is evident that there exist different forms of swelled leg as a sequela of fever. The difference in question will be rendered still more apparent by a

¹ See paper by writer, "On Paracentesis Thoracis in the Treatment of Pleural Effusions, Acute and Chronic," in 'Edinburgh Medical Journal' for June, 1866.

consideration of the symptomatology of the affection, and to that subject I have now to direct attention.

Before doing so, let me mention that I do not purpose to make any detailed allusion to those instances of swelled leg already signalised, which have been described by the late Drs. Graves and Andrew Anderson, and referred to by Dr. Stewart and Dr. Huss. These were examples of pyæmia, happily not of common occurrence in the progress of either of the ordinary forms of adynamic fever. Dr. Murchison says that he has never known of a case at the London Fever Hospital.¹ The blood-poisoning in such cases has, by some writers, been ascribed to the absorption of irritant matter from the intestinal ulcers in the case of typhoid fever. Were this a true explanation, we should expect pyæmia to be a common accompaniment of this fever, which we have already seen it is not, and, further, to find the blood-poisoning limited in its occurrence to enteric fever. But neither does the latter hold true, for in all of Dr. Stewart's and Dr. Anderson's cases it was typhus, and not typhoid fever. Again, the explanation of the purulent absorption taking place in the former fever from bedsores will not admit of universal application, inasmuch as cases of pyæmia have occurred in typhus which had been entirely free from bedsores, or any cutaneous ulceration. Dr. Murchison has alluded to the possible dependence of such a sequela on the presence of foul air, due to overcrowding and defective ventilation.

On a review, then, of the instances of swelled leg after fever which have fallen under my own observation, together with those recorded by authors, it appears to me that such a division as the following is warranted :—1st. Cases dependent on vascular obstruction; *a*, venous; *b*, lymphatic. 2nd. Cases in which inflammation of the arcolar tissue exists. In further illustration of the symptomatology, a brief reference will now be made to these in the order in which they have been named.

Dependent on venous obstruction.—Pain and swelling are admitted to be the characteristic features of interrupted circulation through veins. When, therefore, the convalescent from fever is either suddenly seized with pain in one of the lower extremities, or the limb becomes the seat of gradually augmenting uneasiness, succeeded by swelling, which often attains a

¹ Op. cit., page 190.

very great size, and when the superficial veins are observed to be more or less enlarged, there can be little doubt that obstruction to the return of blood through a large trunk is in existence. In such cases the swelling, besides being confined to one limb, presents an appearance very different from that of ordinary anaesthesia; it does not pit on pressure, as is the case with dropsical limbs; the swelling, on the other hand, resists pressure, is firm, and has a brawny feeling. The colour of the skin, except where the prominent veins exist, is not much altered; certainly it wants the unusually white appearance which is characteristic of the other forms of swelled leg after fever, and is bluish rather than white. The pain is in some cases very severe, and extends throughout the whole limb, and even into the pelvis. There is always more or less of constitutional disturbance associated with this swelling. Not unfrequently the local affection has been preceded by well-marked rigors; if otherwise, chilliness and discomfort have at least been present for some hours. In just such circumstances other and very alarming symptoms have occurred, indicating the implication of the heart itself, and exhibiting, I cannot help concluding, very decidedly that a part of the vascular system intimately connected with its central organ has been primarily involved. Let me illustrate this by the few details with which I have become acquainted in the case of a gentleman suffering from swelled leg whom I have frequently seen. When in India this gentleman had an attack of low fever, subsequent to which his right leg became greatly swollen. While so suffering, he became suddenly affected by pain and a feeling of very great uneasiness in the region of the heart, accompanied by breathlessness, and shortly afterwards fainted. He was seen by medical men, who regarded his condition at the moment, and for some time thereafter, as perilous, owing to the existence of some profound embarrassment of the circulation. Happily, however, he gradually recovered, but, at the distance of fully four years from the original attack, continues to have a swelled leg, not painful, although at times uncomfortable, and giving rise to inconvenience. I do not know how to account for the sudden and alarming seizure from which this gentleman suffered, except by supposing that a portion of clot originally obstructing the femoral or iliac vein on the affected side, had found its way

to the right chambers of the heart, where it may have been detained, or, passing thence through the pulmonary artery, may, in part, have reached the lungs. That further mischief in the latter view, of the nature of metastatic inflammation, did not result in this case, may lead to the conviction of its rarity, but cannot, I think, be regarded as disproving the pathological inference which I have now suggested. Virehow has strongly insisted on the fact that thrombi from the remote venous system of the body produce pulmonary obstructions and metastatic depositions in the lungs. He has argued that secondary disturbances, as, for example, in the lungs, are frequently caused, not by the introduction of softened masses, which rapidly become liquid, into the blood, but by the separation of larger or smaller portions from the end of a softening thrombus, which is carried on in the current of blood, and becomes ultimately impaled in remote vessels.¹ Such fragments becoming detached in the venous system, and ultimately producing pulmonary embolism, must needs reach the heart, and in so doing may give rise to such symptoms as distinguished the interesting ease to which reference has now been made.

When regard is had to the authoritative statement of Virehow in connection with the observations which have been made by Graves, Stokes, Anderson, and Stewart, it may, I think, be affirmed that one variety of the swelled leg of fevers depends on venous obstruction.

That the peculiar condition of the lower limb which we are considering may arise from other causes is, however, abundantly evident, and I have now to direct attention to its probable dependence in some cases on *an obstructed state of the lymphatics*. Dr. Murehison records an instance of typhus fever followed by phlegmasia dolens of left leg, jaundice, and death, in which, upon examination after death, the heart was found to be fatty, and the liver in a state of acute atrophy, while no clot existed in the femoral vein, but, on the contrary, both left femoral and iliac veins were in a healthy state. Clearly, in this as well as in other instances, a cause different from venous obstruction must have determined the swelling of the limb. In certain of the cases which have fallen under my own observation I have observed a distinct enlargement of the lymphatic glands in the

¹ 'Die Cellular Pathologie,' p. 183.

groin of the affected limb, while in one instance there existed a distinct fulness of the same glands within the pelvis. Further, in some cases, and these distinguished by the glandular increase referred to, the limb, besides being swollen and firm, as in the phlegmasia dependent on venous obstruction, has presented a peculiar appearance on the surface. Wanting entirely the bluish hue, with notable prominence of the superficial veins, it has had marks which may, I think, be justly ascribed to dilated cutaneous lymphatic vessels. Hyaline lines in various parts of the thigh and leg, not unlike the marks over the abdomen which we observe in women who have borne children. I have seen the same appearance, and a remarkable one it is, under other circumstances. Through the kindness of Mr. Lister, I saw it in a lady, sent by a medical man at a distance to consult him, whose nates and breasts presented these hyaline lines, and I think I am correct in saying that Mr. Lister adopted the view of their being due to dilatation of the superficial lymphatic vessels. The plate which is here produced represents the lower limbs of a young man who was for several months under my care in the Royal Infirmary, suffering from renal disease. When in the hospital his legs became oedematous, but we were struck by the appearance of peculiar markings over the thighs first of all, but subsequently over the whole limbs. These markings were precisely similar to the lines which I have been describing as occurring in other cases. In the space of a few weeks, the oedema meantime increasing, the limbs assumed the very remarkable appearance represented in the plate, which, considering the changes we were able to observe in them from day to day, led me to conclude that we had to deal with dropsical limbs modified by lymphatic dilatation. Ascites supervening in this case, and proving little amenable to medicinal treatment, I tapped the abdomen on three occasions, and thereafter, as we observe from time to time in instances of chronic renal disease, the dropsy in the limbs rapidly subsided, the strange appearance, resembling the cerebral convolutions, greatly vanished, and there remained, when the patient left the hospital, limbs but slightly enlarged, bearing, however, the hyaline lines which I have endeavoured to describe. The inguinal lymphatic glands were decidedly enlarged in this case also.

ANASARCA ^{IMD}
with peculiar appearance of the cutaneous surface in a case of Renal disease



The view as to the chronic enlargement of the leg consequent on fevers being due in some cases to lymphatic obstruction, has been strongly impressed on my mind by observing the right leg and thigh of an elderly gentleman who sought my advice about a twelvemonth ago. In this case the whole limb presented the same appearance as that already described in the instances of supposed lymphatic obstruction—much swollen, firm, not pitting on pressure, brawny. In addition to these characters, there were on the surface linear elevations not unlike the rugæ so strikingly delineated in the plate, and the lymphatic glands in the groin, and certain of the pelvic lymphatics were very much enlarged. The right thigh of this gentleman at its largest part was twenty-six inches in circumference, while the left thigh was nineteen. Again, the circumference of the right knee was nineteen inches, of the left fourteen, of the right foot at instep ten inches. The swelling was wholly free from pain, and the limb had never been painful. In the evening, and to a still greater extent after any fatiguing exercise, the whole leg became increasingly distended. There existed a mass of enlarged lymphatics in the left side of the neck. The swelling of the leg had made its appearance earliest in the groin, and had gradually extended downwards. A precisely similar condition to that affecting this gentleman's leg I met with in the right arm and shoulder of a lady about forty-five years of age. I cite these cases here, not as examples of swelling of the limbs due to obstructed lymphatics resulting from fever—although I believe that in both some form of fever had previously existed, and that out of it the swelling was developed—but refer to them on account of their presenting, in an exquisite degree, the very same characters which I have observed in certain of the swelled legs of fever; and this circumstance strengthens the conviction I have long entertained, that the swelled leg of fever is sometimes due to obstructed lymphatic vessels, as distinguished from obstructed venous trunks. That such a condition as the former of these should result during the advanced stages, or shortly after the termination of adynamic fever, need not surprise us, when we consider what the true office or function of the lymphatic system is, and how actively engaged it becomes in all febrile disorders. We know that the ingredients of the lymph, which these vessels contain, are derived from the meta-

morphosis of the tissues in which they exist, and that, returning as the lymph does to the circulation through the reeptaeculum chyli, it cannot be regarded, as John Hunter did, solely as an excrementitious fluid. The probability is that, in part, materials of waste are carried by the lymphatics to the blood for the purposes of excretion; and that a portion of the fluid, on the other hand, undergoes some renovating process by which it is made available for further nutrition. Now, in fevers, there is often a rapid waste of tissues, and chiefly of those tissues in which lymphatic vessels abound. I allude particularly to the muscles. We can therefore understand that the absorbing function which the lymphatics have to perform is in the advanced stages of fever, when the process of tissue disintegration is active, very considerably heightened. At that stage the removal these vessels perform is of material for elimination, ultimately through the busy agency of the kidneys chiefly. But when convalescence is established, and the repair of the system is in progress, it may be presumed that they are still actively engaged in absorbing material, which, after mixing with the chyle and circulating in the blood, is to be again fitted for the purposes of nutrition. If the question is put, why, in the ease of the swelled leg of fever is it, that the lymphatics of the lower extremity are affected, and not those in other parts of the body, the upper extremity for example, which is fully supplied with similar vessels? we may observe, first of all, that two instances have been referred to, in one of which the upper extremity and shoulder were affected, and in the other the pelvic and cervical lymphatics; and although the complete history of these cases could not be obtained, I think it very probable that in both, the primary disturbance of the lymphatic system occurred during or shortly after fever. Again, a reason for the lower extremity suffering when the upper parts of the body escape, may be that valves, which materially assist in carrying on the circulation of the lymph, are very frequent in the upper, while they are only sparsely distributed in the lymphatics of the lower extremity. We must further keep in remembrance, that nearly all the accidents, so to speak, which are apt to occur in the vascular system, including arteries, veins, and lymphatics, in the progress of fever, affect the lower extremity by preference.

Allusion has been made to the painless character of the swelled leg of fever, when due to lymphatic obstruction, and this strikingly contrasts with the suffering of the patient when the venous system, on the other hand, is evidently involved. Into the lymphatics, no nerves have been traced. The uneasiness and discomfort which arise when the swelling has attained considerable dimensions may readily be accounted for, the former by the pressure exerted on contiguous tissues, and the latter from the great weight of the limb. In cases of swelled leg of fever, due to lymphatic obstruction, I have never known the serious results of blood-poisoning, nor embolism, nor purulent deposits in remote parts, to occur; and if satisfied as to the exact pathological character of the swelling, whether in its recent, acute, or more chronic form, the physician may offer a favorable prognosis in so far as the risk to life is concerned. Care here, however, is requisite, inasmuch as instances occur in which both venous and lymphatic systems are involved, and in such the prognosis, even when the latter condition is predominant, must be guarded. It is interesting, in connection with the observations now made, to find Virchow, when alluding to the occurrence of an epidemic of puerperal fever, remarking, in respect to the fatal cases, that in all of those which were accompanied by pulmonary metastasis, there existed thrombosis in the pelvis or lower extremity, while in the inflammation of lymphatic vessels there never occurred this alarming sequela.¹

There remains for a brief consideration the third form of swelled leg of fever, namely, *cases in which inflammation of the areolar tissue exists.* The instances of swelled leg occurring in the course of fevers which have fallen under my own observation, and have been specially characterised by the affection of both legs, first one and then the other becoming swollen, have appeared to be in some particulars essentially different from the cases already described, in which venous or lymphatic obstruction has been the determining pathological condition. Reference has already been made to the circumstance of the swelling commencing in the foot or lower part of one leg, and

¹ Op. cit. In reference to such facts, the author justly observes, "Solche statistische Resultate haben eine gewisse zwingende Nothwendigkeit, selbst woder strenge Anatomische Nachweis fehlt."

then gradually rising upwards to the thigh, and ultimately affecting the thigh of the other limb, and descending from that to the leg and foot. An inflammatory affection of the areolar tissue would best account for this peculiar progress. I think it very likely that in such cases the lymphatic system of the limb does not always escape implication. This remark being grounded on the fact, that the cases have at times appeared to present a mixed character, having the general pain of the limb or limbs, which distinguish the inflammation of the cellular tissue, while more or less of the lymphatic fulness and superficial markings, with glandular enlargement, have been visible. Superficial abscess in such cases is not of unfrequent occurrence, but the dangers which must always be regarded as present in such instances of swelled leg, due to venous obstruction, and specially so when suppuration has taken place, are happily absent in the cases we are now considering. Embolism and metastatic inflammation would appear to be the very unfavorable, or hazardous results of swelled leg, due to venous obstruction, the mischief, as truly in the latter case as in the former, being primarily intravascular.

These are dangers which do not present themselves in the cases of swelled leg due to inflammation of the cellular tissue of the limb. While by no means denying that purulent absorption may not in such circumstances be induced, I am satisfied that its occurrence need not be dreaded as a likely event.

I must bring these observations to a close, by offering a very few remarks in regard to treatment.

When occurring in its acute form, whatever may be the cause of its development, swelling of the lower limb in fever will require rest. I am inclined to believe that some of the instances of long-continued swelling have resulted from too little attention being given to this point during the acute stage.

When pain and tenderness are prominent symptoms, fomentations, which may be made with opium or other anodynes, ought to be constantly applied. I have known the employment of leeches, more especially when distinct hardness and tenderness over a venous trunk in the limb were discoverable, to be followed by very considerable relief.

The further treatment of the acute stages will consist in th

use of febrifuge and calmative remedies, attending to the state of the "primæ viæ," and carefully watching in the instance of the venous obstruction for those complications to which reference has been made. Till all febrile disturbance has passed, and the swelling of the limb has greatly, if not entirely, subsided, the patient so affected should be strictly confined to the recumbent posture. In the event of abscesses forming in the limb, and proving the cause of irritation and inconvenience, they will require to be cautiously opened.

A very careful regulation of diet, the avoidance of articles of food calculated to produce excitement of the vascular system, and of stimulants, unless when demanded by weakness or notable sudden failure of strength, should be practised. The only remedial means which I have found available in the treatment of the chronic swelled leg of fever, is very careful bandaging of the limb from the foot upwards to the thigh. In some cases this has been a great source of increased comfort, where formerly it had been had recourse to in a less perfect manner. Fatigue and want of due rest in the recumbent posture are potent causes of the aggravation both of swelling and discomfort, and as much as possible both should be avoided. From local stimulation, and the employment of diobstruent remedies internally, I have seen no advantage to follow.

XXVI.

THE BROMIDE QUESTION. A LETTER.

Reprinted from the 'Practitioner,' Feb., 1874.

EDINBURGH, Jan. 15, 1874.

DEAR DR. ANSTIE,—I have read with much interest in the 'Practitioner' for this month, your translation of the paper by Professor Binz, of Bonn, on "the therapeutic employment of bromide of potassium," and your own account of "the English stand-point respecting the value of bromide of potassium."

Were it not that you have inadvertently fallen into error in ascribing to me the authorship of the article on bromide of potassium which appeared in the 'Edinburgh Medical Journal' for December, 1866, I should not have troubled you with this letter. My appreciation of the value of bromide of potassium as a remedy in various diseases is, however, so high, that I am jealous of any testimony which has been borne to its therapeutic actions failing to exert the influence which such testimony justly possesses. Permit me therefore to state that the article in question was written by my father, the late Dr. Begbie, whose patient investigation of the virtues possessed by bromide of potassium, and strong recommendation of its use, did much to secure for it the confidence of the profession in this part of the country, and largely contributed to its general popularity.

Having made this correction, I am encouraged by the perusal of what you have written to add my testimony to the value of

bromide of potassium in the treatment of various diseases. This I shall do in a categorical manner, in something of the same way as you have recently done.

1. *Epilepsy*.—In this disease my experience of bromide of potassium entirely confirms the statements of Dr. Russell Reynolds. I have repeatedly seen cures, in the strictest sense of the word, result from its employment, after the failure moreover, in many cases, of other remedies. Not only have severe fits ceased to return under its use, but the general health of patients, and more especially their mental condition, which had seriously suffered, have been completely restored.

Years have elapsed in certain instances since the occurrence of a fit, and individuals who had, owing to the frequency and severity of their attacks, been rendered incapacitated for their employment, have been enabled to resume their occupations and continue them without interruption.

Some patients have been benefited but not cured. The fits in such have been rendered less frequent in their occurrence, and less severe, but have not been entirely removed. Still, in these cases the bromide of potassium has been truly the *summum remedium*. No regulation of diet, no peculiar stringency of regimen, no other remedy than bromide of potassium—and many remedies have been tried—has exerted the like beneficial influence. Accordingly, it has in such cases been continued for the purpose, as you and Dr. Hughlings Jackson have observed, of reducing the frequency and severity of the fits. Some cases of epilepsy have in my hands been in no respect benefited by the bromide of potassium. A few have apparently been aggravated. I have not been able to satisfy myself of the reason for this varied but exceptional experience. It is, however, a common experience in the use of other admirable remedies. *Nullum medicamentum est idem omnibus.*

Looking back upon my experience of epilepsy, I feel inclined to remark that, were I deprived of the bromide of potassium, I should conclude that my best hope of being useful to the sufferers from this last disease had been taken away. I cordially embrace the aphoristic deliverance of the authority whom you quote in the concluding sentence of your paper: “It has changed the whole prognostic significance of epileptic attacks.”

2. *Insomnia*.—In the procuring of sleep, bromide of potassium may be said to fall far short of opium, chloral, henbane, and other narcotics; and yet in many cases of insomnia it is superior as a remedy to the whole of these. Its innocency is in the first place to be set against their potency, not unmixed as that potency is with injury or even danger.

In the sleeplessness which precedes mental shock, as is occasioned by long-continued mental strain or by worry, the bromide of potassium in full dose is oftentimes singularly efficacious, not only procuring much-needed sleep, but tranquillising the whole nervous system, and rendering the individual, otherwise quite unfit, capable of mental exertion.

I have repeatedly prescribed the remedy with the happiest results in cases of insomnia accompanied by general restlessness and incapacity for exertion, consequent upon long-sustained mental effort with anxiety in professional men, and on prolonged devotion to business in persons following different kinds of mercantile pursuits, in whom rest, change of air and scene, the most careful attention to diet and regimen, including treatment in hydropathic establishments, and the use of other drugs, had entirely failed to produce any good result. I do not affirm that the bromide of potassium always succeeds, or that it has always succeeded in such cases. I entirely concur in your observation that the insomnia of aged persons is apt to be aggravated by the bromide of potassium, although I have not found it to be always so, as your experience appears to have been. In one case of an old lady the remedy certainly did harm. She, however, had notable calcareous degeneration of the arterial tissues; and from my observations in her case and in other old persons, I have been led to surmise that the condition in question interferes with the physiological action of the salt, and with its therapeutic action likewise. Bromide of potassium is believed to contract the minute vessels, and if degeneration of their walls exists to a marked degree, in failing to produce this effect it is possible that the presence of the salt in the blood may excite cerebral disturbance in place of quelling it. Whether this theory be correct or not, I have for a considerable time avoided the use of bromide of potassium in old people whose vessels were evidently the seat of general atherosomatous degeneration, but have prescribed it in the insomnia

of the aged when this morbid eondition of the vascular system was not conspicioius.

A further and most important use of bromide of potassium is as an adjunet to ehloral. I have found twenty grains of the former greatly inerease the effieieney of a like dose of the latter.

The insomnia of delirium tremens is often overeome by large and frequently repeated doses of bromide of potassium, and so also is the sleepless exelitement of puerperal mania. In these maladies the combination of bromide of potassium and ehloral is ehiefly to be recommended.

I have had oeeasion to verify the important observation of Dr. Begbie, that the eraving for aleoholie stimulants whieh is so distressing a feature of dipsomania, is to a certain extent, even in some bad eases, and to a much greater degree in the milder, restrained by bromide of potassium.

3. *Spasmodic diseases.*—In eontrolling habitual eramps of the lower extremities, I have found no remedy so useful as bromide of potassium; and undoubtedly the very distressing eramps of the formidable Asiatic cholera were found during the last prevalence of that disease to be subjeet to its influence.

In spasmodie asthma I have had a considerable experience of bromide of potassium, and have here but to rank its virtues very highly. In a review of the late lamented Dr. Hyde Salter's exelent work on asthma, undertaken at the request of my friend Dr. Sanders, then editor (1869) of the 'Edinburgh Medieal Journal,' I took oeeasion to express a favorable opinion of this salt as a remedy in asthma, and, at the same time, surprise that it had not even been named by Dr. Salter.

Perhaps in the treatment of asthma no remedy has appeared to me so useful as the iodide of potassium, but in my experiance bromide of potassium has effected a cure when the iodide has failed. The union of these two salts, and their combination with arsenie, has been still more effieacieous.

4. *In the incontinence of urine of young children,* bromide of potassium has answered when even belladonna had not succeeded, and these two remedies are probably the most available in this often troublesome disorder.

A less experiance of its use in the following diseases has led me to the eonclusion that in each of them the bromide of

potassium is a remedy well deserving trial :—Hysteria, more especially its convulsive forms (in these Sir Charles Locock had reliable proof of its value), gonorrhœa, and certain non-malignant enlargements of the liver and spleen, the former more especially when connected with the too free use of alcoholic drinks.

I forbear from mentioning the diseases in which the use of bromide of potassium has been followed by results either negative or wholly unsatisfactory. Let me, however, state that I have grave doubts of its being, in the strict sense of the term, a febrifuge. In relieving the restlessness and insomnia of the febrile state, it unquestionably does good : but such therapeutic action does not entitle bromide of potassium to rank as an antipyretic.

I agree to the fullest extent in your judgment of the value of such articles as that of Professor Binz, in forcing us to scrutinise our grounds of belief in the action of remedies with additional rigour. Although I regard Professor Binz as essentially wrong, it will be my duty, after reading his paper, to reconsider the position I have been led to assume.

Believe me, dear Dr. Anstie, yours sincerely,

J. W. BEGBIE.

XXVII.

ALBUMINURIA

IN CASES OF

VASCULAR BRONCHOCELE AND EXOPHTHALMOS.

(*Read before the Medico-Chirurgical Society of Edinburgh, 4th March,
and reprinted from the 'Edinburgh Medical Journal' for April, 1874.*)

THAT albuminuria may exist independently of Bright's disease, and be therefore unconnected with any structural change in the kidneys, is a proposition which few physicians, if any, will be prepared to call in question.

No doubt, the presence of albumen in the urine is the most significant feature in the symptomatology of Bright's disease, otherwise there could have existed no warrant whatever for the employment of the term as a synonym for that disease. The use of the expression in this way is, however, faulty, and will become more and more unsuitable as the discovery of albumen in the urine, under other circumstances than those which indicate the existence of a grave renal disease in one or other of its different forms, is made. The presence of albumen in the urine as a notable feature in some cases of vascular bronchocele and exophthalmos has been familiar to me for some time; while a very special interest is attached to the circumstances under which the albuminuria has in a few instances been met with.

I have been unable to find any reference to the association of an albuminous condition of the urine with those remarkable symptoms, the union of which characterises the disease now well-known through the writings of Graves, Stokes, Basedow, Begbie, Trousseau, and other writers. This is, I believe, only to be accounted for by the circumstance that the condition of the urine has hitherto in this disease not been made the subject of any careful examination. It will of course be understood that I exclude from this reference the albuminuria of passive renal congestion, which is so often witnessed in cases of heart disease, and likewise when the primary vascular impediment is seated in the lungs, and sometimes also in the liver. From this reference I also exclude those instances of vascular bronchocèle and exophthalmos in their advanced stages, in which the heart, and in their turn, not unfrequently the kidneys, have become involved in organic changes. In the latter, dropsy and albuminuria are constantly present, but under these circumstances they are to be properly regarded as symptoms, not of the disease itself, but of those complications which are prone to occur in its course.

The albuminuria incident to cases of vascular bronchocèle and exophthalmos in their earlier stages is essentially a temporary albuminuria, and is evidently unconnected with any form of renal degeneration. But although temporary, disappearing as the other symptoms of the disease are either relieved or removed, the albuminuria has generally been considerable in degree, and sometimes even excessive.

In this respect the coagulability of the urine in cases of vascular bronchocèle and exophthalmos has presented a remarkable contrast to the temporary albuminuria which is found in certain other diseases. I have indeed never seen so large an amount of albumen in the urine in any other disease, when the cause of the albuminuria was not inflammatory or organic.

My attention having been called to the association of an albuminous condition of the urine with vascular bronchocèle and exophthalmos, in the first instance, owing to the existence, in certain cases, of œdema of the feet and ankles, I became satisfied that the association is by no means of infrequent occurrence. I have found albuminuria in a considerable number of the cases which have lately fallen under observation,

and it is more than likely that it may have existed in other instances, although unrecognised from causes to which reference will be made. Albuminuria has existed in persons of both sexes suffering from this disease, and has been more common in cases of female than male patients; but when the much greater frequency of vascular bronchocele and exophthalmos among women than men is kept in view, the symptom has been present in a larger proportion of males than females. In some it has been an evanescent symptom, lasting only for a short time, and when so, only present in limited degree. In others, the albuminuria has been very considerable—it has even been excessive, and it has lasted for weeks, indeed for months—while the other notable symptoms of the complex malady continued, and only disappeared as the latter became relieved or removed. Cœdema of the lower limbs, although in the first instance calling attention to the condition of the urine, has not been observed to bear any constant relation to the albuminuria; on the contrary, œdema, and sometimes considerable anasarca of the legs, have been present without any appearance of albumen in the urine; and albumen, when present, has generally existed without any form of dropsical swelling. In the most notable cases of albuminuria in connection with vascular bronchocele and exophthalmos, dropsy has not been present.

In prosecuting my inquiry on this subject, a very interesting circumstance became manifest, namely, that the albuminuria was in certain cases limited to the period of digestion—present immediately after a meal, and absent when the person fasted. I had in one case been not a little puzzled by noticing the strange variety presented by the urine within very short periods—the albumen present in considerable quantity one day, and absent the next—present in the urine of the forenoon, and not to be detected in that passed before dinner. By obtaining repeatedly specimens of the urine in this case, and in one or two others, I was able to satisfy myself that in this disease the albuminuria is apt to possess the remarkable character of only occurring during or immediately after the digestion of the food.

This appears to me to be a most interesting feature, and it is also in various ways a very important one. The existence of albumen might readily escape detection if the physician relied on

the results of one examination, as he is not unapt to do; and even when taking more than usual care, it is quite possible that in several specimens of urine furnished by the same patient for examination it might be found that no albumen existed. Conceive a patient so affected consulting a medical man before breakfast or luncheon; his urine, carefully examined, found to be non-albuminous; but, from some cause or other—and we know how fickle some patients are—calling for another physician shortly after a meal, when a large precipitate of albumen occurred on applying heat as well as on the addition of a little nitric acid. Remarkable as this character of the albuminuria which occurs in cases of vascular bronchitis and exophthalmos is, there is another feature pertaining to it which is even more striking. The albumen is present in much larger quantity after breakfast than either after luncheon or dinner. In one case of this kind, which I was able to observe at intervals for a considerable time, the urine presented the following characters:—It was passed in average amount, was of healthy colour, reaction, and density. On no occasion was the density observed to fall below 1015, and it never rose above 1025; the average density was that of health, 1020. Very occasionally this urine deposited lithates, and from time to time contained a slight excess of earthy phosphates. Sugar was never present. Albumen existed in this urine daily for upwards of a twelve-month, but only at certain times of the day, and these times were readily found to be shortly after meals. After breakfast, however, the amount of the albumen was invariably greater than after luncheon, dinner, or an evening meal. Being greatly interested in these peculiar phenomena presented by the urine in the case of a gentleman whom I had recommended to spend the spring months in the south of England, I requested him to take an opportunity of consulting Dr. George Johnson, of London, whose opinion in all departments of urinary pathology is so deservedly held in high esteem. In connection with this case, Dr. Johnson wrote to me as follows:—"I saw two days ago a patient of yours, who asked me to write to you. As he told me that the explanation which I gave him of his symptoms is essentially the same as that which you gave him, I need not enter into minute detail in writing to you. I found that the urine passed after his breakfast contained a large amount of

albumen; that passed at 3 p.m. contained none; that in the evening, three hours after dinner, contained a small quantity. He has been overworked, and is evidently a nervous, excitable man. I conclude that there is no structural change in the kidney, but that his kidney is irritated and congested at intervals during the process of excreting the products of faulty digestion. I confess that I am at a loss to account for the fact of the urine being more constantly and copiously albuminous after breakfast than after dinner. I repeated to him the usual directions as to avoiding cold and wet and fatigue, and long fasting. I also advised him to make trial of an exclusively milk diet. He told me that you had made the same suggestions to him. I prescribed a mixture of tincture of quinine and tincture of nux vomica, acid hydrochloric diluted, and syrup of ginger, to be taken after food, and advised him to take an occasional dose of chloral hydrate when he is restless or disturbed by dreams.

"It occurs to me to ask whether the breakfast taken after a long interval from the previous meal, and when, consequently, the absorption of materials is likely to be more rapid, gets into his vessels quickly, and in a crude and half-digested state? If this be so, food taken at shorter intervals would seem to be indicated. The urine passed in my room an hour and a half after breakfast, became nearly solid with heat and nitric acid. I have often met with cases in which the urine has been albuminous only after food and exercise, but I have not before met with one in which the *breakfast* appeared to be so especially noxious to the kidney."

A brief account of the case to which Dr. Johnson alludes in his interesting communication just quoted, will now be given, before offering certain considerations which its observation has suggested.

A gentleman, of about thirty years of age, had long been in a somewhat delicate state of health, although no particular attention had been called to his symptoms till the summer of 1871. He was then suffering from debility, great nervousness, and palpitation of the heart. These had succeeded a condition of looseness of the bowels, which had existed for a considerable time. The prominence and peculiar expression of the eyes in this gentleman were, at the time now referred to, quite charac-

teristic, and suggested the very probable discovery of a goitre. This, although the patient had been quite unaware of its existence, was readily detected in the form of a soft pulsating tumour on both sides of the neck. The visible pulsation of arteries in the neck and limbs was present in a notable degree. On examining the urine of this gentleman, it was found to contain a considerable amount of albumen; but speedily the discovery was made that the albuminuria was not persistent, but, on the contrary, variable in its occurrence. The urine passed after meals was found to be more constantly and highly coagulable than that passed while fasting, and at times the urine was found to be free from albumen. Dr. Henderson, of Helensburgh, under whose care this gentleman had been, had noted the variable character of the albuminuria, and had distinctly traced its occurrence to the periods of digestion. Both before and after this gentleman's visit to the south of England and residence on its coast, rest from professional duties—which in his case were arduous—had been enjoined, and various experiments in diet and regimen had been practised. He had also several remedies in addition to those prescribed by Dr. Johnson. From bromide of potassium and belladonna he undoubtedly received benefit, but more especially from digitalis. To the latter, indeed—which, in the form of its tincture, he took persistently for months, in doses of from ten to twenty drops thrice daily, frequently combined with iron, and sometimes alone—he has himself ascribed the chief benefit. Under its use the prominent eyes have retired, the goitre has nearly if not entirely disappeared, the cardiac pulsations have fallen from 140 per minute to the normal standard, and the distressing palpitation from which he suffered has been succeeded by calmness in the heart's action. The nervousness and apprehension so characteristic of his malady, and which in his case were often most distressing, have given place to mental calmness and tranquility. He has become greatly changed for the better in appearance; having been formerly very notably thin, he has now become very fairly nourished. He has returned to his professional duties, and during the past winter has discharged them regularly and comfortably. For months there has been no appearance of albumen in his urine. The last time I had an opportunity of examining the urine, which was passed shortly

after breakfast, it contained no trace of albumen. The recovery in this gentleman has been complete.

It is surely a satisfactory consideration that a condition of excessive albuminuria—the urine becoming nearly solid on the application of heat and addition of nitric acid—may, after all, not indicate the existence of any structural change in the kidney. Of course, in connection with the albuminuria, the presence or absence of certain other important features must, under such circumstances, be taken into account. Apart from the intermittent character of the coagulability, the facts that the quantity and density and colour of the secretion did not deviate from the healthy standard, and still more, that diligent and repeated examination by the microscope failed to detect the vestige of a cast of any kind, were to be regarded as the proofs of the renal derangement being functional and not organic. Still, there is occasion for reiterating the assurance that albuminuria is not Bright's disease, and for pointing out that, when unconnected with the presence of blood or pus in it, there may be even a highly coagulable condition of the urine, due to causes which are wholly independent of any structural change in the renal substance. Such, I am persuaded, may confidently be affirmed of the albuminuria which is apt to occur in cases of vascular bronchocoele and exophthalmos.

Some little time after my attention had been called to the peculiar features of the albuminuria which is incident to cases of vascular bronchocoele and exophthalmos, and to which reference has now been briefly made, a very instructive instance of the malady fell under my notice in the person of a medical man, who had been for some years engaged in active practice in the south of England. Calling one day for advice, the gentleman in question told me that he was the subject of Bright's disease, and feared that little or nothing could be done for his relief. He certainly looked ill, was thin and sallow in appearance, and evidently deeply depressed in spirits. Having, however, noticed, as he entered my room for the first time, that he possessed the prominent eyes, with peculiar staring expression, so characteristic of vascular bronchocoele and exophthalmos, I ventured—in reliance on my previous observations—to offer the comforting suggestion, that possibly, if not probably, the presence of albumen in his urine might be due to

causes which were capable of being removed, and did not indicate the existence of any serious disease. This remark he received with politeness, but with very evident incredulity, mentioning that his condition had already been condemned by medical authority, that he did not expect to be cured, but only felt justified in expecting a little prolongation of life with greatly impaired health. On carefully examining this gentleman, a bronchial of considerable size, soft, and pulsating, of whose existence he had been unaware, was discovered. His pulse was small, and as frequent as 140 per minute. The urine, on its earliest examination, while the patient was fasting, and between 1 and 2 p.m., was to his own surprise, found to be free from albumen, its density 1020, and of acid reaction. Subsequent examinations of the urine determined its decided coagulability after meals, and its freedom from albumen while abstinence from food was practised. This gentleman was exceedingly nervous, and very desponding. Under treatment a considerable improvement took place. As he had occasion to pass through London, I begged him to see Dr. Johnson, and it is to him Dr. Johnson alludes in a letter of date 27th October, 1872, from which I now quote:—"There is a striking resemblance between his case and that of the Seoteh clergyman, whom you were so good as to send to me. Dr. —— is extremely feeble and nervous, and I fear that the prognosis is bad. I quite agree with you, that a long sea voyage would be the best course for him, but he seemed unwilling to do anything that would separate him from his family." I have not seen this gentleman for some time, but his progress can be traced in the correspondence I have had with him. On the 28th of March, 1873, he wrote:—"I have gone very comfortably through the winter, considering all things. I am much stouter than when you saw me, and much stronger. I do a good deal of walking in the course of the day. My heart still beats very rapidly, but its action is not so irregular as formerly. Whether albuminuria exists, I cannot say, as I never test for it, and try to banish the thought of it altogether from my mind. The goitre is decidedly less in size, but is still visible."

I obtained two specimens of urine passed on the 10th of April, 1873. That voided before food was taken, contained deposit of lithates, and was absolutely free from albumen. That

passed an hour after breakfast had a density of 1016, and contained a very faint trace of albumen. The letter which accompanied the specimens of urine will exhibit the peculiar nervousness under which my friend still laboured. "I send you," he wrote, "two little bottles with urine which I passed to-day. Please do not send me a bad report, as it will only frighten me. I dread the thought of renal disease so much, that I try to banish the very existence of kidneys from my thoughts. That I shall look with anxiety for your next letter, and yet dread its arrival, your knowledge of my nervous condition will assure you." Happily, I had no occasion to send "a bad report," while, in consideration of his highly sensitive and nervous state, I wrote over the seal of my communication, "good news."

Since the summer of 1873, this gentleman's condition has steadily improved. On the 28th October he wrote:—"I am glad to be able to tell you that my wife was confined on the 27th ultimo, and has done very well indeed. For myself, the only trouble I now have is occasional palpitation." Again, on the 8th December:—"My general health is now very good. I am as fat as ever I was, and my eyes have lost that unnatural stare. There is still a slight enlargement of the thyroid gland, and sometimes—though rarely—my kidneys act very little. Digitalis and iron remedy this. My heart still beats fast." My last communication, of date 17th Jan., 1874, gave a most satisfactory account of his progress, and was written a few days before he embarked as surgeon of a ship sailing with the royal mails for Madeira, Ascension, and the Cape of Good Hope. Before obtaining this appointment, my friend was obliged to go before the medical officer of the General Post-Office for examination as to personal and professional fitness. In this communication, he says:—"I find no remedy relieve me so much as bromide of potassium, in 20-grain doses, three daily. Aconite and digitalis do not relieve me much."

This case is certainly a very gratifying and encouraging one.

Not only has there been an almost entire disappearance of albumen from the urine, but the other symptoms from which the patient suffered in very notable degree—the palpitation of the heart and throbbing of the arteries, the bronchocele and exophthalmos—have all become very greatly lessened, and

will, I fully expect, soon entirely disappear. This hope is justified by the results of experience in other cases. It has occurred to me to witness, within the past two years, three cases of vascular bronchitis and exophthalmos, all in females, in two of which albuminuria existed, gradually improve under the same treatment as that which has been pursued in the instances more fully detailed, and ultimately in these a complete cure has been obtained. In the second patient, whose case has been narrated at some length, renal casts were said to have been seen. This may very possibly have been so, but repeated careful examinations of the urine, made while he remained under my care, failed to detect their presence. I have, indeed, in no instance of the albuminuria occurring in cases of vascular bronchitis and exophthalmos, found renal casts. This remark applies equally to the examples of excessive albuminuria, and the more numerous instances of the disease in which the coagulability of the urine has neither been great nor long-continued. Albuminuria is not a constant symptom of vascular bronchitis and exophthalmos, but it is a frequent one. I am inclined to think that it may hereafter be found a more frequent symptom than my own observations presently entitle me to call it. From the circumstance that I have had no opportunity of carefully watching some instances of vascular bronchitis and exophthalmos which have recently fallen under my notice, having in such been able to make an examination of the urine only on a solitary occasion, it is very probable that albuminuria may have escaped detection. It existed in a patient of Dr. Rosa, whom I saw lately, a married woman, at. 36, the mother of seven children, in whom the malady succeeded the occurrence of enteric diarrhoea and prolonged lactation. Dr. Affleck informs me that he has found albuminuria of the nature I have been describing, to exist in a sufferer from vascular bronchitis and exophthalmos recently under his care.

Having indicated the nature of the albuminuria which is found in certain cases of vascular bronchitis and exophthalmos, it now becomes necessary to inquire a little more fully into its pathology. Albumen is, in all probability, not a constituent of healthy urine. It has, indeed, been stated by Dr. Gigan of Angoulême, that albumen exists in normal urine, and can be thrown down by chloroform. Beequerel, Aran, and Parkes

have satisfied themselves that the precipitate which is produced by the addition of chloroform to the urine is not albumen, but a mixture of chloroform, mucus, and organic substances. Albumen, however, is so frequently present in the urine, and occurs under so vast a variety of circumstances, that it becomes a matter of very great importance to determine its clinical significance. The presence of blood, pus, or spermatic fluid in the urine renders it coagulable; but it is scarcely necessary to state that in the cases of vesicular bronchocoele and exophthalmos to which I have referred, there were none of these conditions. Again, the excessive use of a diet composed chiefly or entirely of albuminous matter, such as eggs, has been found by various observers—among others, Barreswil, Hammond, and Brown-Séquard—to produce albumen in the urine. Barreswil, after taking ten eggs, passed albuminous urine for twenty-four hours. There can be little doubt that, in some persons peculiarly constituted, the partaking of certain articles of food difficult of digestion by them, produces albuminuria for a time. Of this nature was the ease of the student mentioned by Sir Robert Christison, in whom a large amount of cheese or pastry produced albumen in the urine. Apart, however, from errors of diet, as Dr. Parkes has stated, temporary albuminuria will occur in persons with very slight disease. Bencke, when suffering from dyspepsia, noticed albumen in his own urine four times in four weeks. Clemens, Rayer, Martin Solon, and many other physicians, have made similar observations. It may be admitted, then, that albumen, although not an ingredient of healthy urine, may occur in the urine of healthy persons, or of persons whose disorder of health is, at the time of its presence, very slight. Attention has recently been called by Dr. George Johnson to the occurrence of albuminuria in healthy persons after bathing in cold water. Again, albuminuria is apt to occur in relation to a great many disorders which are not essentially connected with structural change in the kidneys. Not to dwell upon pregnancy, as a condition of the system with which albuminuria is associated, there is the puerperal state. Again, there is a large number of febrile and inflammatory diseases in the urine of which albumen very often occurs. Among these may be mentioned scarlet fever, measles, erysipelas, smallpox, diphtheria, typhus and typhoid fever,

cholera, &c., and, of inflammatory diseases, pneumonia. Over and above these relationships, there are various forms of viscerai disease—of disease affecting the heart, liver, and lungs—in the urine of which albumen appears ; and the physician, in his observation of such cases, is on the outlook for its occurrence, and ascribes it, when it does come, to the general impediment to the circulation which the following diseases—(I name them as illustrative examples only) dilatation of the heart, cirrhosis of the liver, emphysema of the lungs—produce ; for, owing to these, the renal circulation necessarily suffers. In such diseases, the albuminuria is almost invariably associated with a diminished secretion of urine. It is not necessarily so in the albuminuria of vascular bronchitis and exophthalmos,—the quantity is generally unaffected, and so are the other characters of the urine.

Dr. Roberts, of Manchester, has very clearly pointed out, that, in endeavouring to determine whether the presence of albumen in the urine be dependent upon the existence of organic disease of the kidneys or not, the question in each individual case must be considered in connection with the three following points :—1. The temporary or persistent duration of the albuminuria ; 2. The quantity of the albumen present, and the occurrence and character of a deposit of renal derivatives ; 3. The presence or absence of any disease outside the kidneys which will account for the albuminuria.¹

Now, viewing the albuminuria of vascular bronchitis and exophthalmos under these aspects, the following observations may be made :—1. The albuminuria is temporary ; for, according to Dr. Parke's definition of that condition, it has totally disappeared while the patient is under observation ; but, instead of lasting a few days or weeks, as holds true of most instances of temporary albuminuria, properly so called, it has lasted for many months, indeed for a year. Intermittent or remittent albuminuria would be a better signification than temporary, for the albuminuria of vascular bronchitis and exophthalmos, but, better still, because more definite, albuminuria occurring during or after digestion. 2. The amount of albumen which is present in the urine when the cause of its manifestation is independent of organic or inflammatory disease is usually

¹ 'On Urinary and Renal Diseases.' Second edition, p. 172.

small ; very often it is not more than a mere trace. The amount of albumen in the urine when passive congestion of the kidneys results from cardiac or other visceral disease may indeed be considerable, but I do not remember ever to have seen the urine under such circumstances very highly coagulable ; very highly or excessively albuminous has, however, been the character of the urine in at least one example of vascular bronchocele and exophthalmos, the recovery in which has been complete. Again, in the temporary albuminuria of other maladies, there is generally some deviation, often notable, from the normal condition of the urine in other respects ; the quantity, density, and reaction of the urine are often affected ; and there is the presence of lithates in excess, or an undue amount of earthy phosphates. Not so, generally at least, in the cases of vascular bronchocele and exophthalmos which I have seen. With the exception of its containing albumen in considerable or large amount, the urine has been healthy. Neither has there been in the latter any deposit derived from the kidneys. In this respect, indeed, there is the interesting fact of a copious presence of albumen in the urine, without any trace of casts of one kind or another, and without any renal epithelium or blood. Further, the form of albuminuria which we are now considering, differs from any other form hitherto described, in being limited to the period of digestion of the food. 3. The presence of disease apart from the kidneys is of course conspicuous in vascular bronchocele and exophthalmos, while the peculiar morbid condition of the nervous system and of the blood-vessels in that disease, as well as the anaemia which exists, must, I think, be taken into consideration in our endeavour to determine the pathology of the albuminuria, which we now know to be in some way or other associated with it.

In vascular bronchocele and exophthalmos, there is always present much disturbance of the nervous system—the sufferers from this disease are invariably highly nervous—they are often hysterical. The primary disorder of the circulation, both cardiac and vascular, is of the nature which we associate with derangement of the nervous system. The organs and parts of the body in which the local manifestations of disturbance are seated, are organs and parts freely supplied with blood-vessels

and blood,—the thyroid gland, the spleen, which, although not invariably, is often affected, and the deep ocular tissues. To these must be added the kidney. From the failure of due nervous influence, the small vessels, and, it may be presumed, the capillaries, in the thyroid gland, and the deep-seated orbital vessels, become dilated, and the circulation through them in consequence interfered with. We can infer from the consideration of the essential nature of the renal circulation that if an obstruction to the return of blood through the inter-tubular capillaries and veins exists, either from an obstruction in the heart or lungs, or from a disordered state of the vessels themselves—a condition which I believe to exist in vascular bronchitis and exophthalmos—favoured by the more or less watery state of the blood itself, there will occur a transudation of serum, carrying with it albumen, through the walls of the Malpighian capillaries into the tubes, and thus the urine will be rendered coagulable.

But in order to explain the limitation of the albuminuria to the period during and after digestion of the food, it is necessary to regard the increased afflux of blood which then takes place, as leading to an altered physical relation between the blood and the walls of the vessels, and likewise determining an engorgement of the Malpighian capillaries, while the loss of tonicity in the efferent vessels is thus rendered temporarily more injurious. In other words, the renal circulation, in its comparatively tranquil condition, is unaffected by the disordered state of the capillaries and small vessels; but when excited, by the stimulus of a recent meal, it is unequal to the task, and the resulting interference determines the albuminuria.

But, further, there is something in the character of this albuminuria to ally it with the albuminuria of indigestion, to the occurrence of which a brief reference has been made. Sufferers from vascular bronchitis and exophthalmos have frequently an inordinate appetite and craving for food. They have bulimia; and, in the cases I have shortly recorded, this symptom was notably present. A large meal taken hurriedly is not unlikely to influence, as a remote cause, the production of the albuminuria. I think Dr. Johnson's explanation of the greater amount of albumen in the urine after breakfast than dinner, may be correct—the same explanation had occurred

to my own mind—that the earlier meal taken after a long fast gets into the blood-vessels quickly, and in consequence leads to a greater disturbance of the renal circulation. Besides, hot tea and coffee, with eggs, consumed at breakfast, may be presumed to be articles more likely than others to furnish to the blood the offending material.

I have not attempted to exhaust this interesting subject, but have for the present limited myself to pointing out the occurrence of a form of albuminuria which, so far as I am aware, has not in its details been previously described by any observer, namely, albuminuria occurring during and after digestion in cases of vascular bronchocele and exophthalmos.

XXVIII.

HÆMATINURIA.

(Read before the Medico-Chirurgical Society of Edinburgh, 7th April, 1875,
and reprinted from the 'Edinburgh Medical Journal' for May, 1875.)

This disease, in which the passage of the colouring matter of the blood, haematin, with the urine takes place, has of late years been described by Dr. George Harley,¹ Dr. Diekinson,² Dr. Greenhow,³ and Sir William Gull,⁴ while Dr. Roberts, of Manchester, in his work on Urinary and Renal diseases, besides detailing interesting examples of the disorder which have fallen under his own observation, has given an excellent summary of the whole subject of haematinuria.⁵

Antecedent to the publication by Dr. George Harley, in the 'Transactions of the Royal Medical and Chirurgical Society,' of two cases of this remarkable malady, the circumstance of haematin or haemato-globuline existing in the urine without the association of blood-discs had been noticed by different pathologists.

¹ "On Intermittent Hæmaturia; with Remarks upon its Pathology and Treatment." 'Medico-Chirurgical Transactions.' Second series, vol. xxx, p. 161.

² "Notes on Four Cases of Intermittent Hæmaturia." 'Medico-Chirurgical Transactions.' Second series, vol. xxx, p. 175.

³ "Case of Intermittent or Paroxysmal Hæmaturia." 'Transactions of the Clinical Society of London.' Vol. i, p. 40.

⁴ "A case of Intermittent Hæmaturia, with Remarks," 'Guy's Hospital Reports.' Third series, vol. xii, p. 381.

⁵ Second edition, p. 139.

Thus, Neubauer and Vogel remark—"The urine sometimes presents a bloody or reddish-brown, or brownish-black, or even an inky coloration, and yet, under the most careful microscopic observation, blood-corpuscles cannot be detected in it." Urine of this kind, these authors go on to observe, "is occasionally met with in diseases, which are associated with, what is called, a dissolved state of the blood—in scurvy, in putrid and typhus fevers, in malignant remittent fever, after the inhalation of arseniuretted hydrogen."¹

Dr. Parkes observes—"Hæmatine appears in the urine in two states, either in the blood-corpuscles or separate from these; . . . in the second, the pigment is completely dissolved in the urine, to which it gives a more or less brown or black colour. Dissolved hæmatine," Dr. Parkes adds, "appears to indicate not local disease and rupture of the vessels, but a special affection of the blood, either general or local, produced by some septic or profound eaehectic diseases. In bad typhus, malignant variola, pernicious remittents, &c., in scurvy, and sometimes in *morbus Brightii*, the urine may be very dark from hæmatine; and the very dark urines, if bile and vegetable pigments be absent, almost always indicate its presence."²

Dr. Thudichum describes hæmatin or hæmato-globuline as dissolved blood-corpuscles, "for," he observes, "it is in fact a mixture of the albuminous fluid filling the corpuscles—globuline, and of the colouring matter, which may be obtained in crystals under certain conditions—hæmato-erystalline." The distinction drawn by Dr. Thudichum between dissolved blood and dissolved blood-corpuscles, hæmato-globuline, is without doubt of importance. He was the earliest to direct attention to this particular, and to point out that "urine may contain albumen and hæmato-globuline at the same time, yet they must be present in the same proportions as in the blood, before we can say that they are due to hæmorrhage and consequent solution of the blood."³

¹ A Guide to the Qualitative and Quantitative Analysis of the 'Urine.' New Sydenham Society's translation, p. 310.

² 'The Composition of the Urine in Health and Disease, and under the Action of Remedies,' p. 183.

³ 'A Treatise on the Pathology of the Urine,' p. 235.

The clinical history of the hæmatinuria may be said to date from an earlier period than that of the publications referred to, inasmuch as cases of a very similar nature had already been described or alluded to by Dr. Prout,¹ Dr. Elliotson,² and Sir Thomas Watson,³ also by Mons. Rayer, and Mons. Gergères, of Bordeaux.⁴ More recently Dr Pavy,⁵ Dr. Alfred Wiltshire,⁶ and Dr. Murchison,⁷ have contributed to the illustration of this disorder.

In the accounts of hæmatinuria which have been given by the different authors to whom I have referred, there exists a very close resemblance. The disorder is essentially intermittent in character, or, as it has been styled, paroxysmal. The attack is preceded by a shivering, or at least a notable feeling of cold, and after the passage of the dark-coloured urine, any general disturbance of the system, and lumbar uneasiness or pain, if such have existed, decline. There is unquestionably such movement of the nervous system in many of the cases as to suggest the relationship of hæmatinuria and ague. Of twenty cases collected by Dr. Roberts, "four had at one time or another suffered from undoubted ague, but in the remainder no evidence or suspicion of ague or malarial poison existed."⁸ Sir Thomas Watson, in his Lectures, makes special reference to a connection subsisting between urinary haemorrhage and ague. Dr. Elliotson, in the clinical lecture already mentioned, gives the following very interesting case:—"It was that of a man with a diseased heart and symptoms of ague; he was admitted into hospital on the 24th November. He was one of those unfortunate persons who were sent by a very wise Government to Walcheren, where so many thousands of our countrymen lost

¹ 'The Nature and Treatment of Stomach and Renal Diseases.' Fifth edition, p. 414.

² Clinical Lectures. "Diseases of the Heart united with Ague." 'Lancet,' vol. i, 1831-32, p. 500.

³ 'Lectures on the Principles and Practice of Physic.' Fourth edition, vol. ii, p. 726.

⁴ 'Traité des Maladies des Reins.' Tome troisième, p. 370.

⁵ 'Transactions of the Pathological Society of London.' Vol. xviii, p. 157.

⁶ *Eodem loco.* Vol. xvi, p. 183.

⁷ *Eodem loco.* Vol. xviii, p. 180.

⁸ Op. cit., p. 141.

their lives for no purpose whatever. He had this violent fever of the place, and from that time was never perfectly well. He is forty years of age; he looked sallow and of a dirty pale hue, and on that account I asked him if he had had ague; to which he replied that he had had the fever at Flushing. Now this man was labouring under frequent chills, but had not regular paroxysms of ague. You will find it a common circumstance for ague not to be perfect in all its stages, but for various degrees of shaking to take place from time to time. That was the case with this man. The singular circumstance, however, in this man's disease was, that, when his paroxysms came on he discharged bloody urine. . . . Now, in this man, the kidneys discharged blood, at least there was blood in the urine; at first pure blood, and afterwards less and less, and this he said was invariably the case—haematuria every time the cold fit came on. This circumstance, however, made no difference in the treatment, and I gave him sulphate of quinine. I mentioned, however, that he had had a disease of the heart. There was a great impulse of the left ventricle; but this was only a recent occurrence, and the cause of it I do not know. There was also a strong, full, sharp pulse, and on that account I bled him to a pint, put him on low diet, and kept his bowels open every day. He was bled on the 25th to another pint, on account of the violent action. The aguish symptoms were now quite certain, for I had observed them myself, and I therefore gave him 5 grains of sulphate of quinine three times a day. He was bled again on the 6th of December to 16 ounces. He bore it well, and, in fact, was all the better for it. He then took 10 grains of sulphate of quinine three times a day till he became perfectly well, so far as his aguish symptoms were concerned. He lost the rigors, he lost the cold fit, and lost the bloody urine. The bloody urine was intermittent like the rigors; that is an interesting circumstance. I never met with an instance of a similar description. There can be no doubt of its truth, because the man showed his urine, and the blood was abundant in it. He was presently quite well, so far as this was concerned, and the symptoms arising from hypertrophy of the heart were much diminished. Having had aguish fever, however, in the severe form which he suffered, whenever the east wind blows, or he is exposed to cold and wet, or commits any

errors in diet, or is guilty of any debauchery, he will be liable to a return of the disease."

I think it worth while to give Dr. Elliotson's concluding remarks on the case, which have a special reference to its treatment. " You have seen several times, in the course of the winter, that when blood-letting is indicated, the indication to give sulphate of quinine does not interfere with the depletion. This man was bled on account of the great impulse of the heart, three times to a pint, and the symptoms for which the bleeding was instituted were not aggravated by the quinine, nor, on the other hand, was the cure of the aguish symptoms by the quinine at all impeded by the bleeding. The diseased heart and bloody urine appeared to have no connection with the other, but the bloody urine depended on the ague. Although the man considered himself quite well, his ague and hæmaturia having been cured, and the impulse of the heart having been considerably diminished, yet he will, of course, through the Walchcren expedition, be a shattered man as long as he lives."

M. Rayer, in treating of renal hæmorrhages, notices, under his third group—" Hémorragies Rénales Essentielles"—the case of Dr. Elliotson just quoted, and likewise a very interesting one recorded by M. Gergères, in which the relation of aguish symptoms and hæmaturia is very clearly exhibited.¹ Rayer also refers to a similar instance previously published by a Dr. Stewart.² It is, of course conjectural that these

¹ " Un cas analogue est rapporté par le Docteur Gergères:—Un jeune homme, capitaine de navire, jouissant habituellement d'une bonne santé, fut pris pendant deux heures de frissons très vifs, après lesquels se développa une forte chaleur: pendant cette période, le malade eut besoin d'uriner; mais, au lieu d'urine, il rendit par l'urètre une grande quantité de sang. Quelques heures après, une sueur s'établit, et le malade se crut guéri. Le lendemain, à la même heure, retour des mêmes accidens fébriles, et de l'évacuation du sang. M. Gergères prescrit un traitement émollient tant interne qu'externe. Les symptômes céderent encore à la même heure que dans le premier accès. Le troisième jour, les mêmes phénomènes se reproduisirent encore avec plus de violence. Dès-lors on s'empressa, vers la fin de l'accès, d'administrer le sulfate de quinine à la dose de vingt cinq grains; ce moyen mit fin à tous les accidens, et en empêcha le retour."

² " Antérieurement Stewart avait publié l'observation d'une hematurie périodique, traitée sans succès, depuis huit mois, par la diète et le régime

were instances of hæmatinuria. I agree, however, with Dr. Harley in thinking it¹ highly probable that the case recorded by Dr. Elliotson is the exact counterpart of those he has described.

Paroxysmal hæmatinuria appears to be almost limited to the male sex; only one of the twenty cases collected by Dr. Roberts occurred in a female. In the same series of cases, the age of the patients at the commencement of the disease ranged from two to forty-eight years. Two cases were under twenty, seven between twenty and thirty, six between thirty and forty, two between forty and fifty, while in three the date of invasion is not specified.

Whether connected with malaria or not, there can be no doubt as to the important influence of cold, more especially when associated with damp, in exciting the paroxysm of hæmatinuria. To this circumstance all observers of the disease have borne testimony. It is well illustrated in the two cases which have fallen under my notice, and to which I shall now call attention, leaving a few remarks on the pathology and treatment of this obscure disease for the close of my communication.

A. H—, æt 25, a clerk; in height 5 feet 4½ inches; of weight 8 stone 7 lbs.; an orphan. Has two brothers both of whom are healthy. First seen on the 11th December, 1874, and again on the 18th of the same month, when he informed me that, for fully three months, he has not ceased to pass dark urine daily after midday. He had good health till September, 1873, when he for the first time noticed the dark colour of the urine. The dark appearance of the urine was not at that time persistent; it occurred on an average about once a week for some weeks. After a few weeks, the urine resumed its normal appearance, and this continued till the autumn of 1874. He had overtaxed his strength by walking to Queensferry, a distance of nine miles, to visit the Channel Fleet, and had also been exposed to cold and damp. After this the dark urine reappeared. He has never received any blow or injury over the loins, nor has he at any time experienced pain in the lumbar region.²

antiphlogistique, et qui guérit dans l'espace de trois mois par le quinquina et les toniques. Le sixième mois de ce traitement, le malade était complètement rétabli."

¹ Op. cit., p. 173.

² I make this observation more particularly in connection with the following interesting statement of Sir William Gull:—"There is reason for thinking that a blow or injury to the loins may give rise to this complaint

The urine has on no occasion been dark before 11 a.m. His usual breakfast has consisted of a cup of tea with sugar and cream or milk, or of porridge with milk, with a small piece of ham, and a little bread or toast. On Sundays, when keeping in the house, during the whole day, the dark urine does not appear. Before the dark urine is passed, he invariably feels general discomfort, and a sensation of coldness over the whole frame, but this has never amounted to a shivering or rigor. He is very pale, with a distinct icteric tint of the conjunctivæ. A well-marked anaemic murmur is audible over the base of the heart, accompanying the systolic sound, and a loud *bruit de diable* exists in the neck. There are no scorbutic marks on the surface of the body, no petechial spots, and no other form of haemorrhage has at any time occurred. The patient's blood, when viewed under the microscope, shows no excess of colourless corpuscles; there is, however, manifest diminution of the red globules. The urine, after reposing for a brief time in a conical glass vessel, presents the following characters:—is of dark colour resembling port wine, possessing a fleshy odour, of acid reaction, having a density of 1022, highly coagulable on the application of heat and addition of nitric acid, a dirty-brown precipitate being thrown down by the former, and by the latter a deep chocolate-coloured mass.

A very considerable brownish sediment falls to the bottom of the glass, and this, when viewed under the microscope, is found to consist of reddish or brownish-red granular matter, with numerous granular casts of the tubuli uriniferi.

Dr. Affleck, who kindly undertook a careful chemical examination of the urine of this patient, both when abnormally coloured and when free from blood pigment, has favoured me with the following report:—"The investigation bore reference more especially to the amount of urea, and to the presence of the bile acids. 1. As to the urea. I found, after repeated experiments, in which a marked uniformity of result was obtained, that the urine, without haemato-globuline, contained nearly one fourth more urea than that with it, viz. 92 and 93 grains in the former, and 71 and 81 grains in the latter, per 12 ounces of urine respectively. 2. As to the bile acids. After a long and careful search, I failed to find any distinct evidence of their presence in either specimen of urine. The plan pursued was that laid down by Neubauer and Vogel in their

—intermittent hæmatinuria. Thus, a young lady, in getting into a railway carriage, fell and hurt her back. Soon afterwards she passed dark bloody-looking water. I carefully examined the secretion by the aid of the microscope, but found in it no blood-corpuscles, and only the granular pigment-matter of disintegrated blood-corpuscles."—Op. cit., p. 390.

work. Ample time was given, and full justice done to all parts of the process, and I believe, had bile acids been present in any appreciable quantity, they would have been detected." Dr. Affleck adds, "I ought to mention, that in both investigations I enjoyed the able assistance of Mr. A. D. Murray. Although the result is largely negative, yet even this may not be without its use."

Respecting the elimination of urea, Dr. George Harley had observed, that during the attack of intermittent haematuria in the cases recorded by him, the passage of urea was excessive, and that copious deposition of urates also took place.¹ Dr. Dickinson and Dr. Gee found the urea above the average, but quite within the limit of normal variation.² The former physician, however, in an earlier account of the disease, has remarked, "The urine during these attacks always contained a great excess of urea."³ The difference between the urine of ordinary haematuria and that of intermittent or paroxysmal haematinuria is well expressed by Dr. Harley:—"In ordinary haematuria, the urine is not only coagulable by heat and nitric acid, but contains blood-corpuscles, which are gradually deposited on standing; while in this form of intermittent haematuria, as in some cases of the non-intermittent variety, the urine, although coagulable by heat and nitric acid, contains no blood-corpuscles, and the colouring matter is not deposited on standing. Besides this, the urine contains numerous granular tube-casts, an increased percentage of urea, and a deposit of amorphous urates."⁴

As to the presence or absence of bile acids, I had suggested to Dr. Affleck the importance of determining this point in the urine of haematinuria, keeping in view the observation of Kühne, that the bile acids have a powerful dissolving effect on the blood-cells, and the suggestion of Dr. Parkes, that some cases of haematuria in the urine, might be owing to an action of this kind in febrile ieterus.

On the 11th of December, the patient, whose case I have been relating, began to take quinine in five-grain doses, three

¹ Loc. cit., p. 170.

² Ditto, p. 177.

³ 'Transactions of the Pathological Society of London,' vol. xvi, p. 175.

⁴ Ditto, vol. xvi, p. 168.

daily. He had formerly, while under the care of Dr. Menzies, been treated with gallic acid, in doses of 15 grains, thrice daily; but this astringent, so useful in many cases of ordinary haematuria, had in no measure influenced the discharge of blood pigment.

A few days thereafter, no appreciable change having taken place, the dose of quinine was elevated to 7 grains, thrice daily, before meals, and in addition, the patient was ordered 10 grains of the citrate of iron and ammonia an hour after meals. The effect of this treatment was apparently to lessen the amount of blood-colouring matter in the urine, and for two days together, on one or two occasions, the dark colour entirely disappeared. While continuing the medicines, the haematinuria returned during the very cold weather which immediately preceded last Christmas; still its occurrence was limited to the afternoons; and when the patient confined himself entirely to the house, it did not appear. Rather unpleasant symptoms of cinchonism having presented themselves, while it was evident the remedies had failed to check the discharge of haematin, I ordered, on the 28th of December, 20 grains of the chloride of ammonium, sal ammoniac, to be taken, simply dissolved in water, thrice daily. On the 20th of January 1875, I found that from the day on which this medicine was commenced, no dark urine had been passed. In connection with this observation, however, it must be kept in view that the atmospheric temperature, which had, previous to the 1st of January, been very low, then rose, and milder weather continued to prevail. After this date, the patient has on two occasions omitted the remedy, with the effect of the haematinuria returning. I had prescribed the tincture of the perchloride of iron in 15-drop doses, thrice daily, and while taking this medicine, the dark urine reappeared. It should be mentioned, that when the haematin was absent from the urine, the characters presented by the secretion were, as nearly as possible, those of health; and in particular, there existed no coagulability with heat or nitric acid.

On no occasion did I observe the haemato-crystalline, although very diligently looked for, on account of Sir William Gull's observation. "The granules," remarks Sir William, "when carefully examined, are found to consist chiefly of very small prismatic crystals of haematin; and even such granules as are

not so distinctly crystalline are, on changing the focus, seen to have a somewhat crystalline appearance." The minute granules in the urine I have described were at no time crystalline in appearance.¹

The case now briefly narrated is the second instance of haematinuria with which I have met. An earlier one came under my notice in February, 1873, having been sent to me by Dr. Macleod of Hawick. From Dr. Macleod I have received the letter written to him after examining this patient, a gentleman of upwards of fifty years of age. I now take the liberty of transcribing certain portions of that communication :

"Mr. H—'s case is one of great interest. No urines could be more different than the two specimens he brought with him to-day, voided within a few hours of each other; the one normal in its character, containing no trace of albumen or blood; the other of a deep porter colour, due to the presence of blood colouring-matter. The blood no doubt comes from the kidney. Under the microscope there are visible granular casts of the tubuli uriniferi, a few crystals of oxalate of lime, and some of uric acid; also much amorphous and granular matter, but no blood-disks. The latter circumstance is of much significance, and allies the case with the so-called haematinuria—that is, the passage in the urine of haematin as distinguished from hematuria. I do not think there exists any evidence of renal calculus (of the existence of which malady the patient himself was suspicious), and I believe that the affection in Mr. H— is connected with the ague, or feverish disorder resembling ague, from which he suffers. The presence of blood in the urine, Mr. H— tells me, is generally to be traced to exposure to cold, while warmth wards off the attack. I think Mr. H—'s case less serious on account of its being haematinuria. He must be very careful in avoiding exposure to cold and fatigue; he ought to clothe warmly, wearing flannel next the skin, and particularly across the loins; live generously, but on simple food, not eating much animal food, and drinking only light wine. Will you order for him thirty drops of the liquor ferri per-nitratis, to be taken three daily after meals, with four minims of the liquor arsenicalis? After a little time, full doses of quinine may be tried; and in the event of any severe or protracted attack occurring, I should wish Mr. H— to take the oil of turpentine, in doses of twenty or thirty drops, repeatedly. I think you may speak encouragingly to Mr. H—."

¹ This seems a disease in which the employment of Mr. Mahomed's interesting test of the presence of blood in the urine in minute quantity, or rather of the crystalloids of the blood, might with some advantage be made. By a careful use of the guaiacum and ozonic ether test, infinitesimal traces of blood can be detected in the urine. See "The Etiology of Bright's

Dr. Macleod subsequently informed me that this gentleman had his first attack of hæmatinuria about eight years before his visit to me, and that it occurred after a severe chill or rigor when seal-shooting in the Hebrides. Subsequent attacks took place under circumstances somewhat similar; one in particular, in autumn weather, when exposed to cold in the coursing field. Mr. H— now resides in the north of England, and has from time to time consulted Dr. William Murray, of Newcastle. From the patient himself I had recently the following interesting letter:—"I cannot say I am any better. The attacks now are brought on by a much slighter exposure to cold, and consequently are more frequent; but I do not suffer the same amount of pain, nor have I the shivering fits as formerly, but I am altogether weaker. I seldom go out since the cold weather set in, and only in a covered conveyance; still, even with this precaution, I am sure to suffer from an attack of more or less severity, my urine at the time varying in colour from pale coffee to blood. During last summer, for about two months, when the temperature ranged about 60° , I was free from attacks, as I am now when I keep in the house at 60° . I have said that the extreme pain and shivering have not accompanied late attacks, and sometimes I am not sure in slight ones whether it is an attack or not until I attempt to make water; then I can tell at once, by the penis being drawn back almost entirely into the body, if the water is to be ever so little discoloured. I think I did not mention this when I saw you, nor am I sure that I had then noticed it. I had an attack of jaundice last May."

The last statement is one of importance. There is some connection, I believe, between liver disorder and the passage of hæmatin in the urine. Dr. Roberts remarks—"In most cases the patient has presented a somewhat sallow and icteric aspect, or has looked pale and sickly." Dr. Harley's first patient was slightly jaundiced, "as a result," Dr. Harley adds, "most probably, of the malarial poison, from the effects of which he had not as yet entirely recovered. The varying condition of the three urines," the same writer observes, "clearly pointed to intense congestion of the chylopoietic Disease and the Prealbuminuric Stage," by Fred. A. Mahomed, M.R.C.S., 'Medico-Chirurgical Transactions,' vol. lvii.

viseera of a transient and periodie character. Fitting the practise to the theory, mercurials, and afterwards quinine, were taken by this gentleman, in order to remove the congestion of the erythropoietic viseera, and check the periodicity of the disease. The results were most favorable; for although four years have passed away, he has never had a reeurrence of these urinary symptoms." In Dr. Harley's second ease, the sallowness whieh the patient exhibited appeared to be due to some disturbance of the hepatic funtions. The man admitted that he was a very bilious subject. Similar treatment resulted in the patient's complete recovery. The notable connection of liver disorder with hæmatinuria, just like that of ague, while seen in certain instances, has not been observed in any considerable number of the recorded cascs. The influence of cold is, however, universal; and this remarkable circumstance has in some individuals been observed, that "the haemorrhage," to use Dr. Diekinson's words, "has always eascd on the removal of the cold whieh produced it, and has recurred with undiminished readiness on the next exposure."¹

Dr. George Johnson, it is well known, has called particular attention to the circumstance of temporary albuminuria following cold bathing.² Recently the subject of albuminuria, hæmaturia, and hæmatinuria, in their relation to thermic neuroses, and to taking cold, has received a most interesting illustration by Dr. Layeoek.³

In the paper to which I refer, Dr. Layeoek has given some instructive examples of transient neurotic albuminuria, and he has pointed out that there is much in common, in certain cases, between albuminuria and hæmaturia, and, it may be added, hæmatinuria. Dr. Layeoek believes, and he appeals to facts in support of this belief, that "in the process known as taking cold, there is always a change induced in the trophic nervous system [this does not, in his view, mean the vaso-motor system only, but that larger system whieh, ineluding the vaso-motor as a higher and speeial evolution of it, presides over the primary or vegetative organic processes of nutrition, so as to modify

¹ Op. cit., p. 179.

² 'British Medical Journal,' vol. ii, for 1873.

³ "On Neurotic Albuminuria and Hæmaturia." 'Dublin Journal of Medical Science,' July, 1874.

the chemical conditions of the blood-corpuscles, lymph, and tissues in general, as well as the contraction of the blood-vessels and the distribution of the blood], both locally and generally, such that one or other of a numerous group of trophic changes result in organs and tissues, and that this morbid and morbific change is one of the primary and most essential conditions of the process."

There can be little doubt that, in the curious disease which we are considering—a person apparently in his usual health, on being exposed to cold, even to a modified degree of cold, passing bloody urine, which phenomenon ceases for the time when the individual is placed in a higher temperature—an injurious impression is made on the nervous system by the cold, and it is when the surface of the body is chilled, that the kidney disturbance is effected. That the renal function should be so seriously, although only temporarily, influenced, as to determine the passage of either albumen, blood, or blood-colouring matter, it may, I think, be presumed, and more particularly in the latter case, which we are considering, that some morbid change in the blood itself, although it has as yet eluded detection, has existed ; some product, probably, of faulty hepatic function being the "*fons et origo mali.*" According to our present knowledge, unquestionably defective, I think it very probable, that in paroxysmal hæmatinuria the primary morbid change takes place in the blood. The kidney, however, speedily suffers. Sir William Gull, in the course of some interesting and suggestive observations on the pathology of this disease, specifies "pains in the loins," as showing, along with the remarkable urinary changes, that the kidneys are affected. But lumbar pain is by no means a necessary, I doubt if it be more than an occasional, concomitant of the disordered secretion ; while the appearance the urine presents, and its features, when carefully examined, are quite sufficient to establish the implication of the kidney. The kidney forms the hæmatin, the colouring matter of the urine ; and in order to accomplish this important function, the organ must be in a tolerably healthy condition. Sir William Gull illustrates this by a reference to what occurs in certain cases of post-scarlatinal nephritis. "We frequently," he says, "see hæmatinuria as a sequela of scarlet fever. The usual history is as follows :—After

an attack of scarlet fever the child passes albumen and blood in its urine. The microscope shows that blood-corpuscles are present. The affection is a simple haemorrhage from the kidneys. But when the child advances towards recovery, and the kidneys begin to resume their functions, although albumen may be present in the urine, we no longer find blood-corpuscles, these being replaced by haematin. The urine is dusky, but contains no blood-corpuscles. The kidneys have regained their functions so far that they can now break up the blood-corpuscles. In the next stage the urine, still containing albumen in small quantities, presents urine acid and urates, and we then know that the kidneys are beginning to recover themselves. In the fourth stage the urine contains no albumen, but urates, urea, and its natural colouring matter. The kidneys have then totally regained their functions, and we have seen, step by step, the dynamical power of these organs return."

The analogy between the urine thus affected and haematuria as it occurs in cases such as those I have described, is a tenable one. It is not of course perfect, for in the cases we have been considering, the uric acid excreting function of the kidney is preserved, and, as we have seen, the power of discharging urea may even be increased. Still, the function of converting haematin into normal urinary pigment is interrupted; or, as Sir William Gull expresses it, the kidneys "ought to eliminate the haematin in the condition of urine pigment; instead of that they eliminate the haematin itself."

As to treatment, warmth is evidently the remedial agent of the highest efficiency in this disease. It is alike preventive and curative. In many cases the attack is warded off so long as the surface of the body is kept warm; and in all instances recorded, the restoration of heat, when that has been removed, has led to the cessation of the attack.

The astringent remedies which are so useful in the treatment of ordinary haematuria signally fail to exert any therapeutic action in paroxysmal haematuria. This, at all events, may be affirmed of acetate of lead, gallie acid, and the preparations of iron, although the latter are indispensable in combating the resulting anaemia.

Quinine, in full doses, is unquestionably a valuable remedy. Next to heat, it may for the present be considered as the remedy

of most value in paroxysmal hæmatinuria. It has, however, failed in other hands ; and in the case, the details of which I have now given, it also failed, while another remedy apparently succeeded. That remedy was the chloride of ammonium—the sal ammoniac. It would be very absurd to extol the virtues of the muriate of ammonia in paroxysmal hæmatinuria on the strength of one case only ; but I am anxious to bring its employment to the notice of the profession, being very hopeful of its being found serviceable in this as well as in other diseases of neurotic origin.

I was led to employ it in the case now narrated from reflecting on the very remarkable obstrengt and alterative properties which that salt possesses, more especially in relation to hepatic disorders, and, further, from its frequently great power in relieving neuralgic suffering.

Acting directly on the nervous system and on the blood, it appeared to me a medicine, likely to exert a beneficial influence in a disease, in which disturbance of nervous system and of blood unquestionably coexisted. In this expectation I have not been disappointed in the only case in which I have as yet had the opportunity of employing it.

XXIX.

ANCIENT AND MODERN PRACTICE OF MEDICINE.

(*An Address in Medicine, delivered at the Forty-third Annual Meeting of the British Medical Association, held in Edinburgh, August, 1875, and reprinted from the 'British Medical Journal,' August 7th, 1875.*)

WHEN the late distinguished Professor of Logic and Metaphysics in the University of Edinburgh inquired, "Has the *practice* of medicine made a single step since Hippocrates?" and in vindication of his own belief in the negative conclusion, referred to the recorded opinions of several eminent authorities of modern times in the profession, he put a question which no thoughtful mind within the pale of medicine will be inclined to evade, and the consideration of which, after some sort, may suitably engage our attention in such a meeting as the present.

Sir William Hamilton, in penning the question referred to, had under review 'An Account of the Life, Lectures, and Writings of William Cullen, M.D.,' the famous Professor of the Practice of Medicine in the University of Edinburgh from 1769 to 1790, by Dr. John Thomson; and having noticed, in terms of well-deserved commendation, the masterly execution of his task by the eminent author of the 'Lectures on Inflammation,' and accompanied him in a brief survey of the doctrines promulgated by the renowned triumvirate of the early part of the eighteenth century, to wit, Hoffmann, Stahl, and Boerhaave, he

was tempted by a mild reflection of Cullen on the practice of Stahl, which censure, indeed, was judged too indiscriminating by Dr. Thomson, to indulge in a philippic against the modern practitioners of the healing art, quoting what for his purpose appeared to be the apposite phrase of Hoffmann, "Fuge medieos et medicamenta si vis esse salvus," and that of Celsus, "Optima medicina est non uti medicinâ." The vehemence of Sir William Hamilton's denunciation is more fully explained by a note published in 1853, to the original article, which had appeared in the 'Edinburgh Review' for July, 1832, where it is shown that the dangers which are to be apprehended in the practice of medicine arise, in Sir William Hamilton's opinion, from the illiterate rashness of its practitioners, for he transfers to his pages, with very evident satisfaction, the statement of Dr. Gregory: "I think it more than possible that in fifty or a hundred years the business of physician will not be regarded even in England, as either a learned or a liberal profession." If the medical faculty of the University of Edinburgh had in any measure justly laid itself open to the charge of hastening the decadence of learning in the profession, it will be admitted by every dispassionate inquirer that the statutes and regulations of that University relative to degrees in medicine entitle it, at the present time, to be regarded as in the van of those bodies, which are striving for the honour and advance of the medical profession. It is, indeed, impossible to read the animadversions of Sir William Hamilton without coming to the conclusion that learning in the practitioners of medicine, by which he evidently understood general culture and, in particular, classical attainments, was, in his opinion, the great desideratum. Between learning of the nature referred to, and usefulness in medicine, as dependent upon ample professional qualifications, there is really nothing antagonistic. Not a few of the most distinguished men in the profession in quite recent times have been accomplished scholars. But, while this holds true, let it be distinctly understood that learning of the kind in question is not supreme; it is secondary in importance to ability in the healing art. I make bold to say that not a few physicians, with no pretension whatever to learning, have served their generation well, and have done much to recommend the profession they zealously cultivated, if they cannot be said to have

adorned it. If, therefore, it were necessary to decide between the claims of medicine as a learned or so-called liberal profession and as an useful art, the preference must be awarded to the latter. Let us be thankful, however, that no such issue is before us. Medicine is a liberal profession, and will, doubtless, continue to be so, although the diffusion throughout its ranks of polite learning may have become diminished, a result which is to be in no small measure attributed to the very great enlargement which has taken place in all that is proper to medicine itself. Think of the rapid advances which have been made during the last thirty years in such departments of medicine as animal chemistry, physiology, pathology, and psychology; and then consider how limited is the time at the disposal of him who is expected to acquire at least a competent knowledge of these sciences, for the cultivation of other subjects, however elevating and attractive. That there exists nothing hostile in the study of medicine, as now pursued, to distinction in other walks, is evident from the circumstance that members of our profession, in no way favorably placed for the study, have achieved distinction in scholarship. Look at the career of the late Francis Adams, toiling as a country surgeon in Aberdeenshire, and yet distinguished as the translator of Hippocrates, Aretæus, and Paulus Ægineta. Who can fail to sympathise with the feelings of that accomplished man when, in drawing his *magnum opus* to a close, he thus expressed himself: "I shall conclude this argument and my present task, by quoting the memorable words in which Cicero apologises for his having spent a certain portion of his time in the cultivation of elegant literature and of philosophy, leaving the reader to apply the same in the case of Hippocrates, and, I may be permitted to add, in that of the humble editor of the present volume, who trusts he shall not be set down as an idle and unprofitable practitioner of the art because he has found leisure, amidst the turmoil and distraction of a professional life, to communicate to his countrymen the important opinions contained in the genuine remains of the Coan sage."

It has been my happy lot to meet with others who, although less distinguished, some indeed wholly unknown to fame, have cultivated, in circumstances quite as trying, their natural taste for classical and other learning.

" Along the cool sequester'd vale of life
 They kept the noiseless tenor of their way."

In remote districts of the country, undergoing a daily round of fatigue and anxiety, which must needs try the strength both of body and mind to the very utmost, mine, moreover, has been the privilege to meet and have friendly intercourse with men, who were ably discharging the duties of their calling, and were at the same time being leant upon by the whole community in which their lot was cast, not only as the advisers in sickness, but as persons on whose counsel and judgment all reliance was to be placed.

Having formed the acquaintance of such men, I have with pride reflected on the circumstances that the individuals who were the recipients of so much confidence, and whose friendship was so highly prized, were members of the profession to which we have the happiness to belong. It is not the least of the advantages possessed by membership of this great Association, that in our annual meeting the bands of fellowship among us are apt to be greatly strengthened.

The question of Sir William Hamilton, to which reference has been made, leads us, in the first place, to a brief consideration of the practice of medicine at the period of Hippocrates.

Intimately acquainted, as Sir William Hamilton was, with the whole history of philosophy, he knew the close alliance which existed between philosophy and medicine in ancient times. The most renowned philosophers, antecedent to and contemporaneous with Hippocrates, applied themselves to the study of medicine. Numerous are the references to medicine in the writings of these philosophers. Take, for example, the following passage from the *Phædrus* of Plato, in which not only is the relation referred to, but the name of Hippocrates is introduced.

Socrates remarks: Rhetoric is like medicine.

Phædrus. How is that?

Socrates. Why, because medicine has to define the nature of the body, and rhetoric of the soul, if you would proceed not empirically but scientifically; in the one case, to impart health and strength by giving medicine and food; in the other, to implant the conviction which you require by the right use of the words and principles.

Phædrus. You are probably right in that.

Socrates. And do you think that you can know the nature of the soul intelligently without knowing the nature of the whole?

Phædrus. Hippocrates the Asclepiad says that this is the only method of procedure by which the nature of the body can be understood.

Socrates. Yes, friend, and he says truly. Still, we ought not to be content with the name of Hippocrates, but to examine and see whether he has reason on his side.

Phædrus. True.

Socrates. Then, consider what this is which Hippocrates says, and which right reason says about this or any other nature.¹

(‘The Dialogues of Plato,’ by B. Jowett, M.A., vol. i, page 605.) in speculations as to the phenomena of disease, it is in the highest degree improbable that these philosophers ever practised the healing art. It is, indeed, worthy of remark that in subsequent, although still ancient times, the intimate connection which had subsisted between philosophy and medicine was not regarded as favorable to the growth of the latter, and the share he had in effecting their divorce is held by Celsus as a reason for eulogising Hippocrates. “Hujus autem, ut quidam crediderunt, discipulus Hippocrates Cœus, primus quidem ex omnibus memoriâ dignis, ab studio sapientiæ disciplinam hanc separavit, vir et arte et facundiâ insignis” (*De Medicinâ*, liber primus). Medicine, however, had been cultivated after a fashion long antecedent to the birth-time of philosophy. The doctor-priests of the Grecian temples, or Asclepiadæ, had acknowledged Æsculapius as its origin. The Asclepia, or temples, were erected in many parts of Greece, were ruled by the Asclepiadæ, and used in a manner not very unlike that in which hospitals are employed in modern times. To them the sick resorted for advice and cure. In one of the most distinguished of these temples, namely, that of Cos, built on the island of the same name, one of the Sporades, a group of scattered islands, as their appellation denotes, in the Ægean Sea, off the island of Crete and west coast of Asia Minor, Hippocrates, inheriting a recognised position, acted as an

¹ ‘The Dialogues of Plato,’ by B. Jowett, M.A., vol. i, page 605.

Æseulapian priest. He had been born, in all probability, in the four hundred and sixtieth year before the birth of Christ. But Hippocrates had not only the advantage of the most favorable study in the Aselepon of Cos; we know, on excellent authority, that, under the direction of Herodieus of Selymbria in Thraee, he became intimately acquainted with the practice then pursued in the gymnasia, while, through the instructions of Gorgias and Demoeritus, the former of Leontini in Sicily, the latter of Abdera in Thraee, and himself illustrious as the originator of the doctrine of atoms, he became thoroughly versed in the literature and philosophy of the age.

The foundation of the practice of Hippocrates, with which we are now more immediately concerned, was experience; but this experience of Hippocrates was rational in character, not a mere blind or misguided empiricism. No one could be more convinced of the fallaciousness of a blind empiricism than he was, and his condemnation of it may be recognised in the earliest, the best known, and, perhaps, the grandest of all the Hippocratic aphorisms, “*ἡ πεῖρα σφαλερὴ η κρίσις χαλεπή,*” “experimentum periculosum, judicium difficile.” Hippocrates believed in the existence of a principle, a spiritual essence, the preserver of all things in nature, the restorer of whatever had become disordered. The regulation and superintendence of all the actions of the system were due to this principle, to which he gave the name of *Φύσις*, Nature. Thus, he was led to consider that the chief duty of the physician consisted in watching the operations of Nature, endeavouring, as might be the case, to promote or restrain these, possibly in some, but these very rare instances, to counteract them. “Our natures,” he remarks, or if not he, one of his immediate descendants, who may reasonably be supposed to be expressing the views of the master, “our natures are the physicians of our diseases.” “*Νουσῶν φύσιες ιητρόι.*” It is in reference to this exposition of the function at once of Nature and the physician in relation to disease, that Sydenham, “the chief of English practical physicians,” who in many particulars resembled the Father of Medicine, observes: “He it is whom we can never duly praise. He it is who then laid the solid and immovable foundation for the whole superstructure of medicine, when he taught that ‘our natures are the physicians of our diseases.’” And, again,

"The great sagacity of this man had discovered that Nature by herself determines diseases and is of herself sufficient in all things against all of them." The belief which Hippocrates had in this "vis conservatrix," "vis naturæ medicatrix," would, in the first place, make him, as we know from his writings he really was, a very close observer of the operations of nature. It would further render him cautious in regard to interference with these, and resolute in his determination, as it has been said, "to have two special objects in view, with regard to diseases, namely, to do good, and to do no harm." There is, however, no ground for concluding that Hippocrates was an inert or purely expectant practitioner. On the contrary, there is abundant proof in the works which bear his name that, in limiting, as Sydenham has expressed it, "the province of medical art to the support of Nature when she was enfeebled, and to the coercion of her when she was outrageous," Hippocrates found occasion to be bold and decided in his method of treatment. His employment of powerful remedies is best exhibited in the instances of diseases which, according to the humoral doctrine promulgated by him, were to be relieved by the discharge of some peccant humour. Evacuants of various kinds were used with this intention, purgatives more especially, but likewise emetics, diuretics, and sudorifics. He drew blood by means of the lancet, the scarificator, and the cupping instrument, but with what careful consideration and thoughtfulness is well shown in the treatise Περὶ Διαιτῆς Ὁξέων, 'On the Regimen in Acute Diseases,' in which he remarks concerning the treatment of pleuritis: "But if the pain be not removed by the fomentations, we ought not to foment for a long time, for this dries the lungs and promotes suppuration; but if the pain point to the clavicle, or if there be heaviness in the arm or about the breast, or above the diaphragm, one should open the inner vein at the elbow and not hesitate to abstract a large quantity of blood, until it becomes much redder, or, instead of being pure red, it becomes livid; for both these states occur." What forcibly strikes the reader of the passage now quoted, and of those passages which immediately precede and follow it, is, as indeed Galen among the ancient and many of the modern commentators of Hippocrates have carefully noted, the manner in which the Father of Medicine commences with the milder

means of affording relief from the pain of pleuritis, such as the employment of fomentations, the rules for the preparation and application of which, as laid down by him, are simply admirable; and only in the event of these failing to accomplish the object in view he counsels that recourse should be had to bloodletting and the use of other powerful remedies, including cathartics. In another part of the same treatise, the following rule is laid down for the employment of bloodletting: "Bleed in the acute affections, if the disease appear strong and the patients be in the vigour of life, and if they have strength." Surely, this is a most cautious limitation of the circumstances in which the remedy is, in the mind of the writer, to be advantageously employed. In one passage, however, if not in more than one of the Hippocratic writings, there is reference made to the production of "deliquium animi," "leipothymia," or "leipopsychia," as the Greeks termed it, by bloodletting in the treatment of acute diseases. This rule, which was opposed by the ancient authorities generally, cannot be said to have been invariably acted upon by Hippocrates.

A study of the method of treatment pursued by the Father of Medicine and his immediate descendants exhibits the fact that their rules of procedure were all based on experience. He had the merit of discovering the great truth that accurate observation in medicine is the real foundation of all knowledge, and he proceeded in the true spirit of the inductive philosophy to generalise solely from the phenomena thus observed. It can never cease to afford material for wonder that through the genius of one man so much was accomplished, when we reflect on the circumstance that in the time of Hippocrates human anatomy had scarcely, if at all, been practised, that physiology was virtually unknown, and the use of remedial agents was almost entirely limited to articles of the vegetable kingdom, and these the indigenous plants of Greece and the neighbouring countries. To the subject of diet and regimen, however, Hippocrates paid the greatest attention. In the Hippocratic writings there occur terms which exactly correspond with those we so frequently employ: full, ordinary, and low diet. In the treatise Περὶ Ἀγυῶν the following passage occurs:—"A diet slightly restricted will be sufficient in those cases in which there was no external wound at first, or when the bone does

not protrude; but one should live rather sparingly until the tenth day, as being now deprived of exercise; and tender articles of food should be used, such as moderately loosen the bowels; but one should abstain altogether from flesh and wine, and then by degrees resume a more nourishing diet." And so, not to multiply quotations, in the treatise already referred to, and in *'Αφορισμόι*, there are many interesting and instructive suggestions to be found regarding the administration of food and wine. It is sufficient, in passing, to make a brief reference to the paramount importance Hippocrates attached to the doctrine of crisis, and to the bearing which this had on the treatment of diseases. The doctrine of crisis, indeed, was an essential part of his system of humoralism, and had in consequence an intimate connection with the method of treatment he pursued. Critical events were evacuations of different kinds, occurring chiefly by the skin, bowels, and kidneys.

With the views he entertained as to crisis, there is further intimately blended the so-called Hippocratic doctrine of critical days. Galen expressly affirms that Hippocrates was the first author who treated of these; but, whether this be true or not, we know that he attached very considerable importance to the doctrine. "Fevers," he remarks, "come to a crisis on the same days as to number on which men recover and die." It was the particular attention given by Hippocrates to the tendencies manifested by diseases to recovery, or, on the other hand, to an unfavorable termination, also to the occurrence of evacuations or of crises in their course, that led to the remarkable care with which he studied the whole subject of prognosis. There is no more interesting or valuable work in the whole Hippocratic collection than the one entitled *Προγνωστικόν*, '*Prænitiones*', '*Prognostics*'; and happily concerning its authenticity, as the undoubtedly genuine work of the Father of Medicine himself, there has never been any question.

Again, we should be doing serious injustice to the Father of Medicine were we not to notice, and that in terms of the very highest commendation, the profound sagacity exhibited by him in the observation of the influence of external agents on men in health and on disease. This is fully exhibited in the treatise *Περὶ Ἀερῶν*, '*Ydatῶν*, *Toπῶν*', in which the operation of the atmosphere, of particular seasons, situation and dwellings of

the people, in the production of health and diseases of different kinds is discussed. Dr. Adams says of it that "it relates to a subject of commanding interest, and deserves to be carefully studied, as containing the oldest exposition which we possess of the opinions entertained by an original and enlightened mind on many important questions connected with public hygiene and political economy, two sciences which of late years have commanded a large amount of professional attention." Since this passage was written by Dr. Adams, greatly increased interest has been awakened in these subjects. I venture to affirm that the most enlightened inquirer concerning public health, be he legislator or physician, will find much to instruct him in the pages of Hippocrates.

The narration of individual cases of disease commenced with Hippocrates; he may, indeed, be said to have been the originator of the clinical study of medicine. By way of comparison between ancient and modern medicine, some clinical observations of Hippocrates may be quoted in the first place, and thereafter certain passages cited from a modern clinical lecture not unworthy of being placed alongside of the former. In the first book of the '*Epidemics*,' *Ἐπιδημίων*, a, it is thus written:—"Philiseus, who dwelt near the wall, was laid up. On the first day, fever acute; he perspired; night very disturbed. Second day, aggravation of symptoms; in the evening, an injection procured a good stool; night quiet. On the morning of the third day, and up to noon, appeared free from pain; but in the evening, acute fever, with perspiration; thirst, tongue dry; passed black urine; night disturbed; he did not sleep at all; his mind wandered on all subjects. On the fourth day, general paroxysms; urine black; night more durable; urine of improved colour. On the fifth day, about noon, a little blood escaped from the nostrils; urine varied in appearance with thready clouds resembling semen irregularly suspended in it. The urine did not deposit. A suppository caused passage of some feeble matter with wind. Night distressing; little sleep; talkativeness; delirium; extremities very cold, and could not be warmed; the patient voided black urine; he rested a little towards daybreak; lost speech; had a cold sweat; extremities livid. About the middle of the sixth day, he died. The respiration was throughout large and rare, like that of a

person who required to be reminded to breathe. The spleen was swollen, and formed a roundish tumour. The perspiration continued to be cold to the end; the paroxysms were on even days." It is to the description here given of the patient's breathing that I wish particularly to call attention. The words employed by Hippocrates are "Τούτῳ πνεῦμα διὰ τέλεος ἀπαιδν μέγα." Galen's commentary on the passage justifies the rendering which has been adopted. Further, we know that the word *ἀπαιός* when used by Hippocrates, whether in reference to the respiration or the pulse, invariably signifies "infrequent," "few in number," "with intervals." Before offering a few observations on this clinical history, I shall give an extract, or rather extracts, from a case recently recorded by Dr. Laycock ('*Dublin Journal of Medical Science*', 1873). "J. O'H—, æt. 56, labourer, admitted to hospital November 18th, 1863. No family history obtainable. Previously to admission was employed in sinking a well, which kept him constantly wet; he has not been a temperate man, but enjoyed good health up to four days before his admission. On that day he complained of pain in the chest and some shortness of breath. He attributed this to overwork, but it was so severe as to oblige him to leave off work, and he consequently went to bed. Next day felt better; but the day after he felt very giddy, and was forced to return to bed. On the 17th, about 7 a.m., his wife found him lying half out of bed, and passing urine on the floor; when spoken to, said his left arm felt very heavy, and he could not move it, and that the left leg was the same; he also complained of headache, frontal and temporal, but not severe." There follows a detailed and interesting statement regarding the patient's condition on admission to the Royal Infirmary. I quote the account of his breathing:—"Breathing appears calm for the most part, with frequent intervals of accelerated and laborious breathing. When the act of respiration is suspended, the fact of coughing once or twice does not seem to bring it back; but if the patient is roused and made to speak, respiration is resumed. The cessation appears to be quite regular in point of time, occupying generally about thirty seconds, and respiration then continues for about twenty-five respirations. The heart's action at such times was accelerated and tumultuous." The progress of the ease is recorded as follows:—"On

December 1st complained of pain in the right side; friction sounds detected; coughs slightly; no expectoration; delirium occurred during the succeeding night; the following morning said he was better, and the ascending and descending respiration was not observed; friction heard in the right infra-axillary region; the right side moved but slightly in respiration, which was chiefly diaphragmatic; dulness was perceived over the right base posteriorly, where also friction and fine crepitation were heard. On the 3rd December the respiratory phenomena were less marked; but on the 4th, weeping was observed in the afternoon, although the patient was cheerful about himself, and the peculiar breathing was again manifested. On the 5th, heart's action was calmer; oedema of the left hand commenced. On the 9th, oedema of the lower part of the left thigh; foot and lower part of the leg very cold. On the 12th, a fresh pulmonary attack commenced, the left pleura now being the seat. During the three following days there was considerable delirium; he was very troublesome at night, crying out and groaning. On the evening of the 16th, he had more frequent paroxysms of apnoea; the cardiac action was hurried, about 130 per minute, but regular. On the 18th the symptoms were found to have subsided somewhat; but on the evening of that day dyspnoea came on, with greatly increased feebleness; pulse about 60, and irregular; respirations hurried and forcible, from 45 to 50 per minute. The pulmonary symptoms had become greatly aggravated, and the patient died about one o'clock on the morning of the 20th. Post mortem was not permitted."

The case of Philiscus, as recorded by Hippocrates, is one of great interest. The occurrence of accession of fever towards the evening of the third day, freedom from fever having been noted in the morning, with supervention of several unfavorable symptoms, in particular great thirst, dry condition of the tongue, black urine, delirium, and coldness of the extremities, led Galen, in his commentary, to remark that the fatal issue of the disease might have been anticipated. It is, however, in respect to the peculiar character of the breathing that the case of Philiscus acquires its chief interest, and it is in this particular that a resemblance is to be found between the ancient and the modern clinical examples now quoted. The attention of Hippocrates had been arrested by the peculiar character of the

breathing which existed throughout the fatal illness of Philiseus. Surely, it is matter of interest and for reflection that the respiration described by Hippocrates as *ἀπαιδὸν μέγα*, "rare and large," and to which Galen has attached the meaning "like a person who forgot for a time the need of breathing, and then suddenly remembered," or "the respiration throughout, like that of a person recollecting himself, was rare and large," has attracted great attention in quite recent times. The expression used by French writers, "besoin de respirer," corresponds in some measure to the meaning which is sought to be conveyed by the Greek words. In Latin, the rendering is, "Spiratio huic perpetuo rara et magna fuit." Daremberg, the learned French editor of Hippocrates, thus translates the passage : "La respiration fut constamment grande, rare comme chez quelqu'un qui ne respire que par souvenir." The relation of this peculiar character of the breathing with which, under the name of "ascending and descending inspiration" of the eminent Dublin physician, Dr. Stokes, the profession is now familiar, to lesion of the nervous system, was, of course, unknown to Hippocrates, and for many subsequent ages could not be known to those who were ignorant alike of anatomy and physiology. In recent times, it has been described by the late Dr. Cheyne, of Dublin. "For several days," wrote Dr. Cheyne, in 1816, in his account of a patient, aged sixty, who had fatty degeneration of the heart, with irregular and intermittent pulse, and whose death was due to apoplexy, "his breathing was irregular; it would cease for a quarter of a minute, then it would become perceptible, though very low, then by degrees it became heaving and quick, and then it would gradually cease again. This revolution in the state of his breathing occupied about a minute, during which there were about thirty acts of respiration." Subsequently, Dr. Stokes connected the peculiar respiration with a weakened state of the heart, "a phenomenon to be looked for in many cases of fatty degeneration." I have never seen it, remarks the same authority, except in examples of that disease. In his description of it, Dr. Stokes observes : "It consists in the occurrence of a series of inspirations, increasing to a maximum, and then declining in force and length, until a state of apparent apnoea is established. In this condition, the patient may remain for such a length of time as to make his attendants

believe that he is dead, when a low inspiration, followed by one more decided, marks the commencement of a new ascending and then descending series of inspirations. This symptom, as occurring in its highest degree, I have only seen during a few weeks previous to the death of a patient. I do not know any more remarkable or characteristic phenomena than those presented in this condition, whether we view the long-continued cessation of the breathing, yet without any suffering on the part of the patient, or the maximum point of the series of inspirations, when the head is thrown back, the shoulders raised, and every muscle of inspiration thrown into the most violent action; yet all this without any *râle* or sign of mechanical obstruction." Dr. Stokes refers to the fact of the sighing respiration, which is closely allied to the more formidable ascending and descending respiration, being observed in persons who are labouring under certain forms of gastric and hepatic derangement, and in connection with undeveloped gout, and likewise to the significant fact of Laennec having described a form of asthma with puerile respiration, while the illustrious French physician attributed the malady to some special modification of nervous influence.¹

Dr. Little, of Dublin, in an able paper published in 1868, while allying the peculiar breathing, as Dr. Stokes had done, with organic disease of the heart, does not admit its special connection with fatty degeneration, but believes it to accompany atherosclerosis of the aorta, valvular lesions, and hypertrophy, as well as dilatation of the left ventricle. Dr. Little has suggested as a theory of its causation, that, in consequence of the existence of one or other of the lesions mentioned, there is an unequal action of the two ventricles. Consequently, the left ventricle is unable to propel the aerated blood, and stops now and then. This blood, therefore, remains in the lungs, pulmonary veins, and left auricle; and, as it has already been fully oxygenated,

¹ "Cependant le malade étouffe; et, comme nous venons de le dire, il aurait besoin d'une respiration plus étendue que celle que permit son organisation: ou, en d'autres termes, l'expiration est très parfaite, le besoin seul de respirer est augmenté. Ce n'est pas dans le poumon qu'il faut chercher la cause de la maladie; et lors même qu'adoptant en entier la théorie chimique de la respiration, on voudrait supposer qu'un besoin extraordinaire d'oxygenation du sang est la cause de la dyspnée, il faudrait encore remonter plus haut et reconnaître que le mal est dans l'innervation même."

it no longer stimulates the respiratory centre through the vagus. Thus, the venous blood which is requisite to excite the vagus branches is not supplied, consequently respiration ceases, and the breathing takes on this irregular action. By degrees, the contractions of the ventricle partially free the auricle and pulmonary veins; venous blood is again sent to the lungs, which stimulates the filaments of the pneumogastric and causes respiration to begin. Dr. Layeock, in his valuable contribution to the pathology of the ascending and descending respiration, or, as he terms it, "recurrent brief apnoea," from which I have already quoted, while offering objections to the completeness of the explanation according to Dr. Little's ingenious theory, does not hesitate to concur in the opinion that the vagus system is involved.

It is worthy of remark that, in the case of Philiscus detailed by Hippocrates, sleeplessness was a notable feature; and, although the febrile condition under which the patient laboured may be the explanation of this symptom, it is at least as reasonable to suppose that the neurosis of the vagus on which the peculiarity of his breathing depended was its cause.

Laennec, the illustrious French physician, the modern discoverer of auscultation, he to whom we are indebted for the introduction of auscultation, and for the great light which his discovery shed on the diagnosis and treatment of diseases of the chest, has rendered due credit to Hippocrates. To the Father of Medicine indeed, and to Aretaeus, among the ancients, Laennec confesses that he was alone indebted for any information on the subject which he has so signally made his own. He expressly states that Hippocrates practised immediate auscultation. "Hippocrate avait tenté l'auscultation immédiate;" and, in proof of his having made trial of this means of diagnosis, he refers to the well-known passage in the treatise *Περὶ Νοσῶν, τὸ Δεύτερον, 'De Morbis,' Liber secundus*, a work which there is good reason for believing, although not composed by Hippocrates himself, was written either by one or more of his contemporaries or by some among his immediate descendants in the school of Cos, in which it is made clear that Hippocrates fell into error in supposing his ability to distinguish between the presence of water and of pus in the chest, by the peculiar sound heard on applying the ear. It is in the same chapter,

and in close relation to the same subject, that Laennec makes the remarkable statement—a statement which cannot be read without feelings of admiration for the candour and modesty of that distinguished man—that he had read the passage in Hippocrates many years before the commencement of certain experiments in physies, which suggested to him the idea of mediate auscultation, but he never entertained the idea of repeating the experiment of Hippocrates; it passed entirely into forgetfulness; he simply regarded it as one of the errors into which that great man had fallen. But the passage reverted to his mind when he commenced his researches; and he felt surprise that its consideration had not proved suggestive to some readers. The error made by Hippocrates, Laennec further remarks, might have led him to the discovery of many valuable truths. He concludes a remarkable passage in the following words: “But Hippocrates stopped with an incorrect observation, and his successors overlooked its import. This, at first sight, may appear surprising; nevertheless, nothing is more common. No man is permitted to embrace all the relations and consequences of the most simple fact; and the secrets of Nature are more frequently disclosed by accidental circumstances than they are wrested by scientific efforts” (*De l’Auscultation Médiate*, Première Partie, chapitre iii). Under the designation of Hippocratic succussion, we possess, as is well known, a means of physical exploration of the chest, which was practised by the Father of Medicine. In the same treatise as that already referred to, the method of procedure in the use of this means is laid down. It is directed that, after the patient has been carefully washed with warm water, he is to be placed in a firm seat, and his hands held by an assistant; the physician meantime, taking him by the shoulders, shakes him, and attentively listens in order to determine on which side of the chest a sound is occasioned. Further, the rules for the treatment of empyema by operation are given with precision; it is directed that recourse is not to be had to paracentesis before the fifteenth day from the commencement of the effusion: where pain is chiefly felt and swelling is most conspicuous, the opening is to be made, while a preliminary incision through the integuments precedes the penetration of the pleura effected by a sharper and more pointed

instrument, protected by a piece of cloth. In some instances, it is mentioned, the perforation of the thoracic parietes was made, not through an intercostal space but through a rib, a plan revived in recent times by M. Reybard. When a sufficient quantity of pus has been permitted to flow, the wound is to be closed by means of a portion of linen cloth attached to a thread. Daily a similar quantity of pus is to be evacuated. On the tenth day, when the whole of the collection has been allowed to escape, a mixture of tepid oil and wine is to be injected through the opening, for the purpose of cleansing the lung. This part of the operation is to be practised twice daily; the injection of the morning being withdrawn and replaced by a fresh quantity in the evening, and so on. At length, when the purulent fluid has become clear and thin, a metallic sound is to be introduced, the size of which is to be gradually lessened as the fluid itself diminishes; thus, the wound is permitted to cicatrize.

The interest attached to the description now quoted is heightened by a consideration of certain shrewd observations bearing on the same subject, and which occur, not in the same treatise alone, but in other of the Hippocratic works, notably in the book of '*Aphorisms*.' An empyema on the left side, the author remarks, is less dangerous than on the right. When the pus was clear, and studded more or less with sanguinolent threads, that appearance indicated the probability of a satisfactory recovery; but, on the other hand, if, on the first day of its removal, the fluid possessed a colour like the yolk of egg, while on the succeeding day it was thick, having a pale green hue, and emitting a foetid odour, it was likely that the sufferer would not recover, but shortly die. Again, the sufferers from empyema and dropsies treated by incision or by the cautery, certainly perish if the pus or water be suddenly evacuated. Every one acquainted with the history of paracentesis thoracis knows that it dates from the period of the Father of Medicine. The dogmatic statements which are to be found in the Hippocratic writings may not all be accepted without question in the present day, but it is remarkable how much truth there is in several of these. One of the highest living authorities on diseases of the chest, Dr. Walshe, commends the precept of Hippocrates that paracentesis should not be performed before

the fifteenth day of effusion, unless the accumulation of fluid be so great as *per se* to threaten life; while he questions the accuracy of the observation made in the ancient time, and adhered to pretty closely in subsequent ages, that success is less likely to follow operations when the fluid has been from the first purulent in character than when sero-albuminous (*'Diseases of the Lungs,'* 4th edition, p. 281).

The modern history of thoracentesis is very interesting. Since the writings of Rousseau in its recommendation, and the still more powerful example of our transatlantic brethren, chiefly Dr. Bowditch, the remedy has become one commonly resorted to. In the article "Pleurisy," contributed to the third volume of Dr. Reynolds' *'System of Medicine'* by a physician, whose premature death the profession had recently to deplore, will be found an interesting account of what Dr. Anstie called a new era in the treatment of pleurisy. The new era is, however, signalised rather by the discovery and introduction of such new instruments as the suction-instrument of Dr. Wyman, so efficient in the hands of Dr. Bowditch, and the aspirator of M. Diculafoy, than by any novel suggestion regarding the treatment of the disease. If, as is not unlikely, we have recently attained to something like perfection in the diagnosis and treatment of pleurisy, a dispassionate review of the history of the disease in ancient and modern times will justify the application of the dictum of Seneca, "Multum egerunt qui ante nos fuerunt sed non peregerunt."

It would be very easy to multiply references to important and suggestive passages in the Hippocratic writings tending to establish yet more fully the truth of the statement that the Father of Medicine was enabled, by the exercise chiefly of his most remarkable powers of observation, to acquire a really wonderful amount of accurate information regarding the causes and progress of diseases as well as the influence exerted by various remedies over them. Enough has, however, been stated to justify Sir William Hamilton in exalting the reputation and praise of Hippocrates. Was Sir William entitled to depreciate the medical practitioners of his own time, which he surely did when exclaiming, "Has the practice of medicine made a single step since Hippocrates?" For centuries after the Hippocratic epoch it may truly be said that little or no

advance in medicine was effected. Many learned and ingenious men no doubt did appear in the ranks of the profession, and by them the position which had been achieved for medicine by Hippocrates was, at all events, maintained. In ancient times by far the most renowned of these was Galen, who, embracing warmly the views of Hippocrates, was the first formally to expound and then systematically to formulate the doctrine of humoralism or humorism. It might be a sufficient answer to the query of Sir William Hamilton to signalise the discovery in modern days of vaccination and the introduction of sulphuric ether and chloroform as anaesthetics; the last mentioned, as the author of '*Rab and His Friends*,¹' says, "one of God's best gifts to his suffering children." These were unknown to Hippocrates, and surely our possession of them indicates at least one step in advance. But we are able to point to the abandonment of many remedies altogether worthless which were used in ancient times, and to the introduction, as well as much more satisfactory employment of others; while, owing to the remarkable and altogether indisputable progress which has been made in the prosecution, first of all, of the study of anatomy, then of physiology, and subsequently of pathology, we are justly entitled to conclude that the more advanced our knowledge of the minute structure of the body becomes, the more extensive our acquaintance with the function and uses of its several parts, and the more refined our understanding of the various morbid processes by which these are altered and destroyed, so much the more thorough and reliable will be our application and adaptation of the means of cure to the treatment of diseases. Any scientific practice of medicine before the physician had been able to acquaint himself with human anatomy was not to be expected; and it is truly marvellous that Hippocrates, Aretæus, Galen, and the Arabian physicians, notably Rhazes, were able to achieve so much, and to hand down to posterity a body of well-observed facts and careful deductions from these facts, wearing so much the aspect of science.

Medicine can, however, be said to have started on a scientific basis when Mundinus, early in the fourteenth century, applied himself with diligence to the dissection of the human body, and published a treatise on anatomy, '*Anatomi Omnia*

¹ John Brown, M.D., L.L.D., (died May, 1882) ED.

Humani Corporis Interiorum Membrorum,¹ which, till the middle of the sixteenth century, was the recognised text-book of the schools. The statutes of the University of Padua prescribed that all anatomical lectures were to adhere to the literal text of the Bologna professor. Mundinus died in 1326,¹ universally respected; and no advances in anatomical knowledge were made after his time till Berenger, of Carpi, published, in 1521, a commentary upon Mundinus. There succeeded Berenger, Vido Vidius, Jacob Sylvius, and the renowned Flemish anatomist Andreas Vesalius. Of the last named Hallam remarks that "if he was not quite to anatomy what Copernicus was to astronomy, he has yet been said, a little hyperbolically, to have discovered a new world" (*Literary History*, vol. i, p. 467). He was the first anatomist who ventured to emancipate himself, and that thoroughly, from the trammels of Galen, who up to that time had been regarded with an altogether blind veneration. Fallopius and Eustachius, two well-known names, names not to be forgotten by any one at all acquainted with anatomy, were the contemporaries, although younger, of Vesalius; and of the same period, or shortly subsequent, were Realodus Columbus, Arantius, and Fabricius ab Aquapendente, the discoverer of the valves in the veins, and the instructor of our own immortal Harvey. The splendid discovery of the circulation of the blood was followed by that of the absorbent system, in which Asellius, a professor at Pavia, Rudbeck, a professor at Upsala, and Bartholin, a Dane, were chiefly concerned; while to Pecquet, a professor at Montpellier, belongs the credit of describing the thoracic duct and its uses. Other important anatomical discoveries, and discoveries also in physiology, were being made simultaneously, or shortly thereafter, in connection with which the names of Malpighi, Glisson, Wharton, Highmore, Richard Lower, Leeuwenhoeck, Ruyseh, Valsalva, and many others start up. The most eminent of the pupils of Valsalva was the distinguished Morgagni, who, following the plan pursued by Bonnet in his '*Sepulchrum Anatomicum*', first published at Geneva, the place of his birth, in 1679, described by Haller as "immor-

¹ Mundinus, sagt John Adelphus in der von ihm besorgten Strassburger Ausgabe vom Jahre 1513, "quem omnis studentium universitas colit ac venerat ut deum."—Haeser, '*Lehrbuch der Geschichte der Medicin*'.

tale opus," became himself professor in the University of Padua, and was the founder of pathological anatomy ('*Der Begründer der Neüeren Pathologischen Anatomie*', Haeser, Seite 654). His works '*Adversaria Anatomica*', and still more his celebrated treatise '*De Sedibus et Causis Morborum per Anatomiam Indagatis*', immensely advanced his favourite science.

While chemistry, about the same time, was advancing towards the dignity of a science, chiefly through the genius of our distinguished countryman, the Honourable Robert Boyle, there arose the sect of the so-called chemical physicians. Of this sect, the earliest was François Deleboe Sylvius ('*Der berühmteste Vertreter der Iatrochemischen Schule*', Haeser, Seite 571), who was born at Hanau in Flanders, in 1614, and, after a time, became professor of the practice of medicine at Leyden. The chemical theory of medicine had, however, passed from Paracelsus, who was born towards the close of the fifteenth century, through Van Helmont, by more than eighty years his junior, to Sylvius. The leading principle of the chemic physicians was that diseases owed their origin to derangement in a process of fermentation, which was constantly at work in the human body. While most of the maladies which were produced in this way arose from excess of acid, some were regarded as of alkaline origin. One eminent English physician embraced the doctrine of Sylvius. Thomas Willis was born in 1621, and in 1659 published his celebrated treatise entitled '*Diatribæ duæ Medico-Philosophicæ; quarum prior agit de Fermentatione, altera de Febribus*'. The object of this work was to prove that, in every organ of the body, there existed its own special fermentation, and that disease of every kind resulted from the disturbance of these fermentative processes. Willis was one of the earliest members of the Royal Society, and left behind him the character of an orthodox, pious, and charitable physician.¹ It is recorded of Dr. Willis that, being consulted regarding the delicate condition of the children of the Duke of York, afterwards James II, he spoke his mind freely, and thereby gave great offence. Bishop Burnet has related that "Willis, the great physician, being called to consult for one of his, the Duke of York's, sons, gave his opinion in the words, 'mala stamina

¹ 'The Roll of the Royal College of Physicians of London,' by William Monk, M.D., vol. i, p. 524.

vitæ,' which gave such offence that he was never called for afterwards." The reputation of Willis, unquestionably a very able man, has been obscured by that of another English physician, his junior by only three years. The physician in question was Thomas Sydenham, "whose character," as Dr. John Brown felicitously remarks in that delightful essay of his, '*Locke and Sydenham*,' "is as beautiful and as genuinely English as his name." He was born in Winford Eagle in Dorsetshire, in 1624. A parallel has been drawn between Hippocrates and Sydenham by more than one modern writer. '*Wiederherstellung des Hippokratesmuss durch Thomas Sydenham*,' is the title of a chapter by Haeser, the erudite German historian of medicine, and a very instructive one it is, on the life and writings of the English physician. He has frequently been called the English Hippocrates, and, in truth, the appellation is deserved; for, like the illustrious Greek physician, the great aim he set before him was the cure of disease, and, although possessing a mind which delighted in speculative inquiry, he never permitted the theories he formed and ably defended to interfere with his treatment. That was based on a rational empiricism, such as we have seen in the instance of Hippocrates; he carefully watched the operation of the remedies he employed, and from these he drew the indications for further guidance. Sydenham was humoral in his pathology, and he further agreed with Hippocrates in the doctrine of crisis, and the subsidiary views as to coction and crasis. We find him frequently referring to the Father of Medicine, as, for example, when he inquires what is gout. It is a provision of Nature to purify the blood of old men, and to purge the deep parts of the body; such at least is the language of Hippocrates. The same may be said of all other diseases, fully formed, and "That practice, and that alone, will do good which elicits the indications of cure out of the phenomena of the disease itself. This made Hippocrates divine." It was from Sydenham that the school of empirical physicians in England sprung—a term to be used, as Hallam has expressed it, "in a good sense," as denoting the regard its disciples had to observation and experience or to the Baconian principles of philosophy.

Another school of medicine had arisen in Italy through the instrumentality of Giovanni Alfonso Borelli, a profound mathe-

matician, who endeavoured to explain the operation of the various functions of the body on mechanical principles. His views and principles were, through the excessive zeal of his pupils, carried beyond their legitimate length. Of these, Lorenzo Bellini, of Florence and Pisa, was the chief. There were other eminent adherents the iatro-mathematical school in Italy; while Pitcairne, Freind, and Mead, in their time, were in this country attached to it; and it secured the sympathies of the illustrious nosologist François Boissier de Sauvages in France, in the eighteenth century.

To the chemiatric and iatro-mathematical schools there succeeded a third, of which Van Helmont was the founder. Embracing the views of the former to a certain extent, he made this important addition, that all the changes occurring in the body, whether arising spontaneously or produced by remedies, are determined by a specific agent inherent in the living system, to which he gave the name of Archeus. This archeus explained, in Van Helmont's opinion, all physiological actions, and accounted for the maintenance of health as well as the occurrence of disease. Founding on the views promulgated by Van Helmont, although widely differing from him, came the earliest of the three distinguished men to whom a brief reference was made at the commencement of this address. Rejecting the doctrines of the chemical and mathematical physicians, Stahl concentrated attention on what he denominated vital actions. He, too, referred these actions to a dominating principle; and the Anima of Stahl—so he named it—resembles, in some measure at least, the Archeus of Van Helmont. To Stahl belongs the great merit of having pointed out that, contrary to the prevalent opinions of the schools, the operations of the animal economy cannot be explained by either chemical or mechanical laws; that there exists something over and above these; and that something is of the nature of vital action. The anima of Stahl, however, was a hypothetical principle, and he signally failed to gain for his theory any general support. Hoffmann, his distinguished colleague in the University of Halle, and his rival, conferred a lasting benefit on science by pointing out that the actions which were ascribed by Stahl to the government of his "anima" were in reality determined by nervous influence. "It was reserved for Hoffmann," says

Dr. John Thomson, "to take a comprehensive view of the nervous system, not only as the organ of sense and motion, but also as the common centre by which all the different parts of the animal economy are connected together, and through which they mutually influence each other." Facts, and many of these most important in their nature, regarding the nervous system, had been recorded before the time of Hoffmann. The renowned professors in the early Alexandrian school, Herophilus, and Erasistratus, and Galen, with others among the ancients, Willis, Vieussens, Mayow, Baglivi, and Pacchioni, much nearer his own day, had laid the foundation for the reasoning of Hoffmann; but, as Cullen has observed, "he was the first who gave any tolerably simple and clear system on the subject, or pointed out any extensive application of it to the explanation of diseases." There is little need for reminding you of the triumphant discoveries in the nervous system which have been made since the time of Hoffmann—such discoveries as have rendered the names of Charles Bell and Marshall Hall in particular, but many others in lesser degree, famous. In no department of pathological inquiry is there at the present time exhibited a greater amount of zeal, or are important facts being more frequently brought to light, than in that pertaining to the nervous system. How signal our advance in treatment also, as determined by that which can alone with any certainty determine treatment—a sound diagnosis! We can distinguish between functional and organic diseases of the brain, spinal cord, and nerves; and use our remedies in a way of which not only the ancient physicians, but many among the moderns, could not have dreamt.

The names of Stahl and Hoffmann, the German professors in Halle, of whom a few words have been said, are inseparably linked with that of the illustrious Dutch professor in the University of Leyden, Hermann Boerhaave. The aim of Boerhaave was essentially eclectic; he culled from the writings of his predecessors all that was valuable, and with these and the results of his own extended observation endeavoured to erect a system of medicine. His system was faulty in ascribing too little importance to the influence exerted by the brain and nervous system generally over the animal functions. The pathology of Boerhaave was as defective as his physiology; his

explanations of morbid phenomena were more applicable to the body considered as an inert hydraulic machine, than as an organised living and sentient system. Intellectually and morally distinguished, few greater men than Boerhaave have adorned our profession in any age or country. After his decease, his reputation, which as a living teacher had been of the most exalted description, rather increased than declined. This result was due in great measure to the publication of commentaries on his works by two of his most distinguished pupils, Haller and Van Swieten. The former of these is justly considered as the father of modern physiology. The magnificent researches of Haller regarding development, growth of bone, and the circulation, deserve the praise and gratitude of posterity not more than the impulse of his ardent spirit and example in laborious inquiry, by which the zeal of his associates and successors was kindled. Of Haller's powerful opponent in the controversy regarding irritability and sensibility—Dr. Whytt—I can only make mention. Contemporaneously with Haller, and conferring benefits on the practice of medicine resembling those which Haller rendered to physiology, was William Cullen. A very erroneous impression of this great Scottish teacher has been entertained by many; more particularly, however, by foreigners. By such, Cullen has been called a purely speculative physician. The condemnation of this opinion is readily supplied by his own words. "There is nothing," he observes, I desire so much as that every disease we treat here should be a matter of experience to you; so that you must not be surprised that I use only one remedy when I might employ two or three; for in using a multiplicity of remedies, when a cure does succeed, it is not easy to perceive which is the most effectual. But I wish that you may always have some opportunity of judging with regard to their proper effects." Again, he says: "Every wise physician is a dogmatist; but a dogmatical physician is one of the most absurd animals that lives. We say he is a dogmatist in physic who employs his reason, and, from some acquaintance with the nature of the human body, thinks he can throw some light upon diseases, and ascertain the proper methods of cure; and I have known none who were not dogmatists, except those who seemed to be incapable of reasoning, or who were too lazy for it. On the

other hand, I call him a dogmatical physician who is very ready to assume opinions, to be prejudiced in favour of them, and to retain and assert very tenaciously, and with too much confidence, the opinions or prejudices which he has already taken up in common life, or in the study of the sciences. Now, I profess to be a dogmatist, but I should be sorry if any person thought me dogmatical; for there are but few theoretical opinions which I have received or offered to communicate with regard to disease, concerning which I am not ready to doubt, and to admit grounds for doubting, as soon as they are offered to me. I know there are no universal rules in the practice of physic; but there are general rules, which all admit of, with more or fewer exceptions, in theory and practice." The foundation of the practice of physic was expressly stated by Cullen to lie in fact and experience. "All our knowledge of Nature consists," he says, "in experience."

To Cullen we are largely indebted for the introduction into general use by medical men in this country of such remedies as the acid tartrate of potash, tartar emetic, hyoscyamus, and James's powder, or the pulvis antimonialis. Tartar emetic Cullen largely employed as an antiphlogistic, sometimes after bloodletting, and sometimes in place of that remedy. He had noticed something of the contra-stimulant action of antimony in the form of tartar emetic, described by Dr. Marryatt, of Bristol, in 1790, and afterwards so strongly insisted upon by Rasori, a professor in Pavia, and by others. A successor of Cullen, one of the most distinguished physicians in recent times, as he certainly was also one of the most benevolent of men, the reverend Dr. Alison, who occupied the chair, which you,¹ sir, now so worthily fill, when this Association held its former meeting in Edinburgh, he, whom Dr. Stokes has recently described as "the best man I ever knew," and in so alluding to Dr. Alison may be said to have turned many hearts towards himself—for what student who knew Dr. Alison did not venerate him? and who can ever cease to cherish his memory?—when indicating the way by which, in his opinion, the further improvement in the art of medicine was likely to be effected, signalled the two following lines of inquiry; first, in the discovery of specifics which may counteract the different

[¹ Professor Gairdner, of Glasgow.—ED.]

diseased actions of which the body is susceptible, as effectually as the cinchona counteracts the intermittent fever, citric acid the scurvy, or vaccination the small-pox ; and, second, in the investigation of causes of disease, whether external or internal—*i.e.* of the conditions under which either the vital action of the solids or the vital properties of the fluids of the body may become liable to deviation from their natural state. It will be readily admitted by all candid inquirers that, under the latter head, very signal advances have been made during the last half century. Look, for example at the etiological investigations regarding continued fevers, and the bearing of these upon treatment, with which the names of Jenner, Stewart, Bartlett, Murchison, and Buchanan, are so intimately connected. Again, consider the great advancees in knowledge of parasitic diseases—the entozoa more particularly—and their appropriate treatment, for which we are largely indebted to Küchenmcister, Von Siebold, Davaine, and Cobbold. Nothing more interesting or more remarkable in the line of therapeutics has recently appeared than the wonderfully successful treatment of hydatids of the lung by the internal administration of turpentine in the hands of Dr. Bird, of Melbourne, Australia.¹ This is a medicine in estimation of which, were time at my disposal, I could say much, having had occasion to watch its influence very closely when administered in cases of pulmonary gangrene and bronchial affections attended by copious expectoration of fetid pus. In these diseases, I regard turpentine as an invaluable remedy.

Of specifics, we still possess but few; while the desire to increase their number is not only legitimate, but is likely sooner or later to be gratified. Of the class of specifics, no remedy better deserves the name than quinine. The potent action of quinine in intermittent fevers thoroughly justifies the application to it of the term specific ; and it is to be noted that the curative action in question is to be seen not only in febrile disorders of the intermittent type, but in neuralgias which

¹ Dr. Bird had formerly used bromide of potassium, twenty grains, with one fluid drachm of tincture of kamala in infusion of serpentine, three times a day regularly. ('On Hydatids of the Lung.' Melbourne: 1874.) I am, however, assured by a recovered patient that, in the treatment of pulmonary hydatids, Dr. Bird now places great reliance on turpentine administered internally.

manifest a similar character. Many ingenious theories regarding the *modus operandi* of cinchona or quinine in these diseases have been advanced; but up to the present time, we are entirely ignorant respecting the method of action of a medicine in whose power we justly place the very highest confidence. The remarkable effects of quinine in reducing the temperature in pyrexiae, and the still more remarkable influence of cold in the same way in hyperpyrexiae, of which Dr. Wilson Fox has given some happy illustrations, are noteworthy facts in the recent history of therapeutics.

A remedy of marvellous power and usefulness, the virtues of which we are still only learning, is the iodide of potassium. This medicine was prepared soon after the discovery of iodine by Courtois in 1812, and has been chiefly employed as a deobstruent, alterative, and diuretic. I am satisfied that the diuretic properties of iodide of potassium deserve to be more widely recognised than is generally the case. Its specific action is seen in syphilitic periostitis; for truly the rapidity and completeness with which pain and swelling decline and disappear in instances of enlargements over the tibiae and other bones in cases of secondary syphilis, are not less remarkable than the readiness with which an attack of intermittent fever or neuralgia yields to quinine. The late Dr. Todd, of London, remarked: "If there is anything in addition to quinine which deserves the name of a specific, it is the iodide of potassium in syphilitic periostitis." Another remarkable action of this medicine is in aortic aneurysm. Iodide of potassium, administered for the most part in tolerably large doses, in this terrible disease exerts a wonderful influence, not only in relieving the neuralgic pains, which are frequently so harassing, but in subduing the local pressure occasioned by encroachments of the aneurysm and in leading, apparently, to firm coagulation within the sac.

It is in the treatment of thoracic aneurysm by iodide of potassium that physicians have learned the very remarkable tolerance of the drug manifested by sufferers from that disease. No reasonable suggestion has hitherto been offered regarding the *modus operandi* of iodide of potassium in aneurysm. The influence it exerts on the progress of aneurysm appears to have been discovered not only empirically, but by the merest hazard, writes Dr. Walshe, "in this point of view, the story of all our-

really valuable medicines is simply repated." (*'Diseases of the Heart,'* 4th edition, page 512). The names of Bouillaud, Nélaton, and Chuekerbutty are specially connected with the early employment of the iodide of potassium in the treatment of aneurysm; while the profession is largely indebted to Dr. G. W. Balfour of Edinburgh for his patient investigation into the subject. (*'Edinburgh Medical Journal,'* 1868.)

Twenty years ago, little was known regarding the virtues of bromide of potassium. If any standard work on the *materia medica* of that date be consulted, it will merely be found recorded of this salt that it is diuretic and cathartic, and, like the preparations of iodine, a powerful deobstruent and alterative. Its dose, moreover, is stated in such works at from three to twelve grains thrice daily. Since then, and more particularly within the last few years, bromide of potassium has rapidly advanced in professional estimation; and, at the present time, it may with confidence be affirmed that there are very few medicines which are more largely employed, and the use of which is attended by more signal benefits. As a calmative and hypnotic, bromide of potassium is largely confided in; but its specific operation in epilepsy is of the most striking description. "It is to be demonstrated, in my opinion," writes Dr. Russell Reynolds, "that there is something specific in the action of bromide of potassium in epilepsy." And the same author observes: "Bromide of potassium is the one medicine which has, so far as I know, proved of real service in the treatment of epilepsy." My own experience of the use of bromide of potassium in epilepsy has been of the most encouraging description. I have repeatedly witnessed cures in the strictest sense result from its employment. Let me briefly refer to one such.

S. A—, a bookbinder, aged 50, had for twenty years been subject to severe fits, occurring irregularly by night and by day, often attended by biting of the tongue. The usual interval between the fits had been a fortnight, and on no occasion had a longer period than six weeks elapsed. In January, 1870, this patient, whose mental capacity had at that time become considerably enfeebled, so much so as to make it necessary for him to give up his business, began the bromide of potassium, and continued it for eighteen months without any pause. The dose never exceeded twenty grains thrice daily. The result of this treatment was an entire cessation of the epilepsy; there has been no

reurrence of the disease. His mental vigour has returned. He long ago resumed his occupation, and has since been busily engaged in it without any interruption.

I could multiply instances of this kind; and so, I believe, could many practitioners who, in the treatment of epilepsy with bromide of potassium, have been mindful to adhere to the rule upon which Dr. Reynolds insists, that the remedy "should not be discontinued in the treatment of a case of epilepsy because of its apparent failure, but that the dose should be gradually increased, and the exhibition of the drug most patiently carried on for a period of many months, or even years." Epilepsy is a disease which specially attracted the attention of the ancient physicians. It was termed *νόσος ἱερὰ*, the sacred disease, by the Greeks; and Aretaeus expressly mentions why the appellation sacred was given to epilepsy "for more reasons than one," he remarks, "from the greatness of the evil, for the word *ἱερός* also means great, or because the cure of it is not human, but divine; or from the notion that the disease occurred from the entrance of a demon into the man." Plato, in the 'Timaeus,' ascribes the use of the term sacred to the circumstance of the head or brain being the part of the body affected in epilepsy. "When the phlegm is mingled," he says, "with black bile, and dispersed about the courses of the head, which are the divinest parts of us, and disturbs them in sleep, the attack is not so severe; but when assailing those who are awake, it is hard to be got rid of; and being an affection of a sacred part, is most justly called sacred." Hippocrates combated the notion entertained by his countrymen that epilepsy was peculiarly a sacred disease, one specially inflicted by the gods. In the treatise *Περὶ Ἱερῆς Νούσου*, he emphatically points out that the incomprehensible nature of the malady is no reason for concluding it to be divine; inasmuch as many other diseases, and notably the paroxysms of intermittent fevers, are just as much above the reach of the human understanding. He believes that epilepsy, like other diseases, results from natural causes. The reader of the remarks on epilepsy in the pages of Hippocrates and Aretaeus cannot fail to have his opinion of these great men enhanced; but he also cannot fail to reach the conclusion that the moderns, under-

standing the nature of convulsive diseases, their connection with altered conditions of the blood, with, for example, anaemia and uræmia, their dependence at one time on central, at another on peripheral, irritation of the nervous system, are infinitely better prepared for their treatment than they were ; and this unquestionably holds true of epilepsy.

The use of the remedies we have been briefly reviewing has, in the first instance, been adopted either by mere accident or empirically ; nor have we, on this account, any cause for feeling regret. We do not know in what the preservative power of vaccination consists ; and yet millions of lives have already been saved by this precaution (Esterlen). A recent and very interesting example of the way in which therapeutical knowledge may be advanced is afforded by what has occurred in the Andaman islands. Dr. Dougall, a distinguished graduate of the University of Edinburgh, has apparently discovered that leprosy sores and other ailments attendant upon that disease can be cured by the aid of oil from the Gurjun tree, which is very common in these islands. Take another disease known to the ancients, although its pathology, still to a considerable extent obscure, has been carefully investigated only in recent times. I mean diabetes ; and regarding it, we may compare the treatment pursued by Aretæus, for example, and that which we now employ, with the result of feeling thoroughly assured that many steps have been taken in the right direction, and with signal advantage to suffering humanity, since the writings of the distinguished Cappadocian physician. I do not think the opinion unfounded that, owing to the recent advances in the knowledge of tubercular diseases, etiologically and pathologically, we may look forward with confidence to a decided gain in their efficient treatment ; but even now may we not be said to possess in cod-liver oil a very potent means of modifying the progress of pulmonary tuberculosis ? In the treatment of this disease and of other allied constitutional disorders, cod-liver oil was first employed in the Manchester Infirmary, chiefly by the elder Bardsley, after the commencement of the present century. Previously to that time, however, an oil obtained by ebullition with water from the fresh livers of several fishes, the ling and skate as well as the cod, had long been a domestic panacea in strumous affections and chronic rheumatism.

Subsequently to its use in the Manchester Hospital, eod-liver oil was largely used in Germany ; but, falling into disuse in this country, its restoration to professional and public favour has followed the publication of Dr. Hughes Bennett's recommendation of its virtues, in his excellent treatise on that subject. Sir Thomas Watson has very happily expressed the characteristic effect of the remedy in phthisis, when he says : " It is antagonistic to a much greater extent than any other drug of the consuming power of the disease." There are probably few medical men who have seen much of this sad malady who would hesitate to concur in the opinion of a very high authority—Dr. Williams—that eod-liver oil is more beneficial in the treatment of pulmonary consumption than any other agent, medicinal, dietetic, or regiminal, that has yet been employed. We may justly congratulate ourselves on the possession of eod-liver oil ; but it becomes us to remember that the ancient physicians used oil inunction in phthisis. This is expressly stated by Aretaeus ; and he, as well as Hippocrates, lauds the use of milk in the same disease, preferring it to all other kinds of food. " For," says the former, " milk is pleasant to take, is easy to drink, gives solid nourishment, and is more familiar than any other food from childhood. In colour it is pleasant to see ; as a medicine, it seems to lubricate the windpipe, to clean as with a feather the bronchi, and to bring off phlegm, improve the breathing, and facilitate the discharges downwards. To ulcers, it is a sweet medicine, and milder than anything else. If one will, then, only drink plenty of milk, he will not require anything else. For it is a great thing that, in a disease, milk should serve both for medicine and nourishment." In fevers Hippocrates did not allow milk, more particularly in such fevers as were attended by bilious discharges from the bowels. The modern practice is not, in this very important particular, in agreement with the ancient ; the highest authorities, as, for example, Gairdner, Murchison, and Parkes, the last mentioned, on weighty theoretical grounds, considering milk the best food in fevers.

We have been alluding to the manner in which the practice of medicine has been advanced, and may doubtless be still further advanced, by the simple method of observation and experience. It is true that we cannot entirely depend upon

empirical laws. We cannot, for example, feel assured that quinine will certainly cure an attack of intermittent fever, mercury syphilis; or, for that matter, that a dose or doses of any given medicine will exert their thoroughly ascertained physiological or therapeutic action; still, such laws are of the highest value, and we cannot help employing them.

The recent progress of chemistry, physiology, and pathology, has naturally led to the establishment of an advanced school of therapeutics, from whose labours signal benefits may not only be anticipated for medicine, but have already been conferred upon it. To Dr. Lauder Brunton, for example, belongs the great merit of conceiving accurately the therapeutic action of the nitrite of amyl from its physiological properties, and thereby of adding a useful remedy to our armamentarium. And so, also, to Dr. Fraser we are indebted for the elaborate investigations regarding the Calabar bean, which have resulted in a demonstration of its therapeutic value. Care must, however, be taken that the results of scientific inquiry and those of patient, oftentimes laborious, observation in the field of practical medicine running counter, do not interfere with the ultimate grand object of our profession—the healing of the sick.

We are not entitled to withhold remedies because we do not understand their exact nature, nor the minute changes they produce in the animal economy. Esterlen has well expressed the attitude which, as practitioners of medicine, we are called upon to assume. “The patient requires our aid, and we must decide for or against the employment of a particular medicine, and upon the manner in which to employ it. If we possess sufficient experience, knowledge of the subject, and practical tact, we shall no doubt be able to do all for that patient which circumstances permit.”

Let each one of us be fully persuaded in his own mind. While deeply interested in, and much instructed by, the experiments performed by a Committee of this Association, regarding the use of mercury, for example, I remain as thoroughly convinced as ever that the much abused drug in question exerts a powerful action on the function of the liver, and is to be trusted as a most efficient remedy in controlling not a few of its disorders.

I regard cold as a powerful antiphlogistic, and its external

application, already briefly referred to, as a remedy of unquestionable value in the treatment of hyperpyrexia; but my own observation, and the fullest attention I have been able to give to the recorded observations of others, have convinced me that the real reason for the present abandonment of a remedy of superior power—to wit, bloodletting—does not lie alone in the advance of scientific pathology. “The thinking man,” writes one of the most philosophical of living physicians, Dr. Stokes, “finds it hard to believe that the fathers of British Medicine were always in error, or that they were bad observers and mistaken practitioners. They, indeed, have rested from their labours, but their works remain; and he who reads the writings of Sydenham, of Haygarth, and of Fothergill; of Heberden and Fordyce; of Gregory, Cullen, Alison, Cheyne, or Graves; must have a very inapprehensive mind if he fail to discover that there were giants in those days; and that the advocacy of such ideas only indicates a state of mind not consonant with the modesty of science.”

INDEX.

A.

ABDOMINAL TYPHUS (typhoid fever),
 albuminuria in, 17

ACCENTUATED CARDIAC SECOND SOUND,
 163
 — diagnostic value of, 161
 — in dilatation of the aorta, 167
 — mechanism of, 167

ACUTE FLEURISY, bleeding in, 222
 — paracentesis in, 205

ACUTE RHEUMATISM succeeded by
 chorea, 21

ADDRESS to the British Medical Association on Ancient and Modern
 Practice of Medicine, delivered
 at Edinburgh 1875, 381

ADULT, croup fatal in, 113

AFFLECK, Dr., on analysis of urine in
 haematinuria, 372

ALBUMINURIA a frequent symptom in
 exophthalmic goitre, 358
 — arsenic in, *vide* Editor's preface
 — critical, 3, 14
 — desquamative, 44
 — in abdominal typhus (typhoid
 fever), 17
 — in Asiatic cholera, 9
 — in cases of vascular bronchocele
 and exophthalmos, 349
 — — independent of organic renal
 disease, 355
 — in certain forms of dyspepsia, 359
 — in erysipelas, 11
 — in organic visceral diseases, charac-
 ters of, 360
 — in pneumonia, 14
 — in pyreptic conditions, characters
 of, 360
 — in scarlatina, 4, 9
 — in typhus fever, 17
 — in vascular bronchocele and ex-
 ophthalmos, its relation to diges-
 tion, 351
 — — explanation of its occurrence,
 361

ALBUMINURIA, inflammatory, 13
 — most marked after breakfast in
 cases of vascular bronchocele
 and exophthalmos, 352
 — not Bright's disease, 355
 — remitting in vascular bronchocele
 and exophthalmos, 360
 — temporary, 1

ALISON, Dr., urged search for specifics,
 and necessity of study of etio-
 logy, 406

ALOPECIA AREATA, 305
 — a neurosis, 305
 — elements of prognosis in, 306
 — non-parasitic, 305
 — treatment of, 305

AMAUROSIS in diabetes, 136

ANCIENT AND MODERN PRACTICE OF
 MEDICINE, address on the, 381

ANÆMIA and chorea, 24
 — cause of vascular bronchocele, 180

ANÆMIC THEORY of vascular broucho-
 cele, 173

ANEURYSM of aorta with laryngeal
 spasm, tracheotomy in, 103

"ANIMA" of Stahl, 403

ANTHELMINTIC ACTION of turpentine,
 sometimes best secured by re-
 peated small doses, 286

ANTHRACOSIS and tubercle, 257
 — dropsy in, 254
 — or coal-miners' phthisis, 241
 — pulmonum, symptoms of, 248
 — theories as to etiology, 249

AORTA, aneurysm of, with spasm of
 larynx for which tracheotomy
 was performed, 103

AORTIC ANEURYSM, second sound of
 heart accentuated in, 163
 — dilatation, second sound of heart
 accentuated in, 163

APNÆA, recurrent brief, of Laycock,
 395

"ARCHEUS" of Van Helmont, 403

AREA of Celsius, 305

ARSENIC in albuminuria, *vide* Editor's preface
 — in ichthyosis, 130
 — in treatment of spasmody asthma, 346
 ASCENDING and descending respiration of Stokes, 393
 ASIATIC CHOLERA, albuminuria in, 9
 — cramps of, relieved by bromide of potassium, 346
 ASTHMA, value of iodide of potassium in, 346
 ATROPIA, valuable in treatment of vascular bronchocoele, 194

B.

BASEDOW'S "Cachexia exophthalmica," 170
 — disease, 170
 BEGBIE'S, Dr., views on vascular bronchocoele and exophthalmos, 173
 BELLADONNA in searlatina, 27
 — — its inutility, 63
 — in vascular bronchocoele, 192
 — useful in vascular bronchocoele, 275
 BILE ACIDS absent in haematinuria, 371
 BIRD, Dr., of Melbourne, his treatment of pulmonary hydatids, 407
 BLACK PHthisis, 243
 BLEEDING in acute pleurisy, 222
 BLENORRHAGIA, use of turpentine in, 296
 BLISTERING in chronic pleurisy, 237
 BLOOD, morbid condition of, in rheumatism and chorea, 25
 BLOODLETTING not abandoned in deference to scientific pathology, 414
 BLOODY STOOLS in cholera, 73
 BOERHAAVE, essentially eleetie, 404
 BRAIN, cancer at the base of, 83
 — effects of turpentine upon, 283
 BROMIDE OF POTASSIUM in convulsive forms of hysteria, 347
 — in cramps of Asiatic cholera, 346
 — — of the legs, 346
 — in dipsomauia, 346
 — in enlargement of the liver and spleen due to aleohol, 347
 — in epilepsy, 344
 — in insomnia, 345
 — in spasmody asthma, 346
 — — disease, 346
 — in treatment of enuresis, 346
 — not an antipyretic, 347
 — objection to Professor Binz's views on, 347

BROMIDE OF POTASSIUM sometimes fails as a hypnotic in old people. Proffered explanation thereof, 345
 BRONCHIAL MEMBRANE, turpentine eliminated by, 284
 BRONCHITIS, acute, complicated by ichthyosis, 130
 — value of turpentine in, 296
 BRUNTON, Dr. LAUDER, his accurate conception of the therapeutic action of nitrite of amyl, 413

C.

CALABAR BEAN, Dr. Fraser's researches on, 413
 CALCIUM CHLORIDE, therapeutical actions of, 307
 — use of, in scrofula, 300
 CALOMEL in cholera, 79
 CANCER at the base of the brain, 83
 CARDIAC AFFECTION and chorea, 24
 CASTOR OIL in cholera, 79
 CATARACT in diabetes, 134
 CAUSE of occasional sycopal tendency in pleural effusion, 219
 CELLULITIS as a cause of swelled leg after fevers, 339
 CELSUS, Area of, 305
 — reticent on thoracentesis, 208
 CHEMICAL PHYSICIANS, sect of, 401
 "CHEYNE-STOKES' respiration," 393
 CHILDREN, thoracentesis in, 210
 CHLORIDE OF AMMONIUM in treatment of haematinuria, 379
 CHLORIDE OF CALCIUM, therapeutical actions of, 307
 CHOLERA and phthisis, 72
 — Asiatic, albuminuria in, 9
 — — cramps of, relieved by bromide of potassium, 346
 — bloody stools in, 73
 — calomel in, 79
 — castor oil in, 79
 — consecutive fever in, 73
 — cramps in, 76
 — diureties in, 77
 — effects of intemperance on, 67
 — friction in, 75
 — galvanism in, 81
 — hot air bath in, 75
 — — damp sheet in, 75
 — mustard emetics in, 78
 — opium in, 78
 — post-mortem appearances, 74
 — relation of preganancy to, 71
 — saline intravenous injections in, 81
 — stimulants in, 76
 — sulphuric acid in, 78

C
CHOLERA, urine in, 77
 — veusection iu, 80
 — vomiting in, 78
CHOLERAIC DIARRHOEA, peresquisi-
 nitrate of iron in, 80
CHOPART, objected to thoracentesis,
 209
CHOREA and anaemia, 24
 — and cardiac affection, 24
 — succeeding acute rheumatism, 21
 — use of turpentine in, 292
CHRONIC HYDROCEPHALUS, case of, 83
 — PLEURISY, blistering in, 237
 — — paracentesis in, 205
 — — thoracentesis in, 235
CHYLOUS URINE, case of, 149
 — iron in treatment of, 151
CLUBBING OF FINGERS in empyema,
 230
COAL-MINERS' PHthisis, 241
COD-LIVER OIL in phthisis, 411
 — large doses prescribed in France,
 319
COLD AND DAMP provocative of haematuria, 370
COLLAPSE OF CHOLERA, hot bath in,
 75
COMPLEXION in vascular bronchocelc,
 273
CONSECUTIVE PEVER in cholera, 73
CONVULSIVE FORMS OF HYSTERIA,
 treatment by bromide of potassium, 347
CRAMPS in cholera, use of tourniquets
 in, 76
 — of Asiatic cholera relieved by
 bromide of potassium, 346
 — of the legs, bromide of potassium
 in, 346
CRITICAL ALBUMINURIA, 3, 14
CRUET fatal in the adult, 113
 — in cases of diabetes, 116
 — oedema albicans in, membrane of,
 121
CULLEN, a dogmatist, but not dog-
 matical, 406
CURE of a case of vascular broncho-
 cele, with exophthalmos and
 albuminuria, 354

D.

DEOBSTRUENT action of muriate of
 lime, 317
DEPILATION in treatment of favus,
 197
 — — tinea favosa, 197
DESQUAMATIVE albuminuria, 4
DIABETES, croup in cases of, 116

DIABETES, partial and complete loss
 of sight in, 133
DIABETES AMAUROSIS, 136
DIABETIC cataract, two cases, 134
DIAGNOSTIC value of accutuated
 cardiac second sound, 161
DIARRHOEA, preceding vascular bron-
 chocele, 275
DICKINSON, Dr., on urea in haemati-
 nuria, 372
DIET in chylous urine, 151
DIGITALIS useful in vascular broncho-
 celc, 275
DIPSOMANIA benefited by use of bro-
 mide of potassium, 346
DIURETICS in cholera, 77
DROPSY in pulmonary anthracosis,
 254
DRUGS found useful in pleural effusion,
 222
DYSPEPSIA a cause of albuminuria,
 359

E.

EDINBURGH, gout in, 140
ELLIOTSON, Dr., on a case of haemati-
 nuria, 367
EMPYEMA, 228
 — clubbing of fingers in, 230
 — of right side more grave than that
 of left, 229
ENURESIS, treatment by bromide of
 potassium, 346
EPILEPSY, bromide of potassium in,
 344
 — use of turpentine in, 291
 — why called *νόσος λέπα*, 410
ERYSPELAS, albuminuria iu, 11
EXOPHTHALMOS, 187
 — and vascular bronchocelc, 169
 — visual accommodation in, un-
 affected, 188

F.

FATAL CROUP in the adult, 113
 — syncope in cases of pleural effu-
 sion, 214
FATHERS of British Medicine were not
 always bad observers or mis-
 takeu practitioners, 414
FAVUS, treatment by depilation, 197
 — with tinea circinata, 201
FEVERS, milk disallowed in, by Hip-
 pocrates, 411
 — swelled leg of, 325
FETID BRONCHITIS, value of turpen-
 tine in, 298

FLUX preceding occurrence of vascular bronchocele, 179
 FRASER, Dr., his researches on the action of Calabar bean, 413
 FRICTION in cholera, 75

G.

GALVANISM in cholera, 81
 GEE, Dr., on urea in haematuria, 372
 GOUT and lead-impregnation, 139
 — in Edinburgh, 140
 — uric acid diminished in urine of, 146

GRAVES' disease, 170

GULL, Sir William, on haematuria, 378

H.

HALLER, the father of modern physiology, 405

HAMILTON, Sir William. His views on the practice of medicine, 382

HARLEY, Dr. George, on urea in haematuria, 372

HEADACHE, certain forms of, relieved by turpentine, 296

HEART, condition of, in vascular bronchocele, 277

HEAT, sensation of, in vascular bronchocele, 273

HEPATIC ENLARGEMENT due to alcoholism, treatment of by bromide of potassium, 347

HERPES CIRCINATUS with favus, 201

HIPPOCRATES, his practice rational not empirical, 386

— lauded use of milk in phthisis, 411

HIPPOCRATIC succussion, 207

HOT AIR bath in cholera, 75
 — bath in collapse of cholera, 75

— damp sheet in cholera, 75

HAEMATINURIA, 365
 — a disease almost exclusively of male sex, 370

— bile acids absent in, 371
 — Dr. Elliotson on a case of, 367

— its relation to ague, 367
 — Sir W. Gull's views on, 378

— treatment by chloride of ammonium, 379

— treatment of, 378
 — urea in, 371, 372

HÆMOPTYSIS, use of turpentine in, 287

HÆMOSTATIC action of turpentine explained, 287

HOFFMANN, his recognition of the influence of the nervous system, 404

HYDROCEPHALUS, chronic, abnormal involution of thymus gland in, 96

— — case of, 83

HYPNOTIC action of turpentine in uterine cancer, 288

HYSTERIA, convulsive forms of, treated by bromide of potassium, 347

I.

IATRO-MATHEMATICAL SCHOOL in Italy, and its adherents in England and France, 403

ICHTHYOSIS, acute bronchitis complicating, 130

— arsenic in, 130

— cases of, 130

— hereditary, 129

— transmitted to males, the females escaping, 129

— various forms of, 123

INCONTINENCE of urine treated by bromide of potassium, 346

INDICATIONS for thoracentesis, 217
 INFLAMMATORY action restrained by turpentine, 295

— albuminuria, 13

INSOMNIA, bromide of potassium in, 345

INTEMPERANCE, influence of, in cholera, 67

INTERMITTENT HÆMATINURIA, 367

IODIDE OF POTASSIUM, value of, in asthma, 346

IODINE, injurious in vascular bronchocele, 195

— useless and harmful in vascular bronchocele, 279

IRITIS, use of turpentine in, 296

IRON in treatment of corybous urine, 151

— in vascular bronchocele, 192

K.

KIDNEYS not affected in cases of swelled leg after fever, 332

L.

LAENNEC, his indications for thoracentesis, 209

LARYNX, spasm of, due to aortic aneurysm, relieved by tracheotomy, 103

LAYCOCK on recurrent brief apnoea, 395

— Prof., on neurotic albuminuria and hæmaturia, 376

LAYCOCK, Prof., on vascular bronchocele and proptosis, 186, 190

LEAD-IMPREGNATION and gout, 139
— and rheumatism, 139

LEECHES in treatment of swelled leg due to venous obstruction, 340

LEFT side more often seat of pleural effusion, 212

LEG swelled after fevers, 325
— lymphatic obstruction as a cause of, 335

— venous obstruction as a cause of, 333

LEPROSY, treatment by gurjun balsam, 411

LIME, muriate of, therapeutical actions of, 307

LITTLE, Dr., on "Cheyne-Stokes" type of respiration, 394

LIVER, disorders of, value of mercury in, 411

LUPUS, muriate of limo in, 319

LYMPHATIC function increased during and after febrile processes, 338
— obstruction in swelled leg, 335

LYMPHATICS, function of, 338

M.

MALFORMATION of pulmonary valves, case of, 109

MALE SEX, haematinuria almost exclusively confined to, 370

MALIGNANT disease of pleura, characters of fluid in, 235

MECHANISM of accentuated second cardiac sound, 167

MELANOSIS, spurious, of Carswell, 241

MENTAL DEPRESSION as a cause of vascular bronchocele, 274

— emotion preceding occurrence of vascular bronchocele, 179

MERCURY a valuable remedy in disorders of the liver, 411

MILK disallowed in fevers by Hippocrates, 411

— its value in phthisis, lauded by Hippocrates, 411

MURIATE OF LIME a deobstruent, 317

— a natural salt of the body, 322
— how to prescribe, 316

— importance of long-continuance of the remedy, 316

— in tabes mesenterica, 318

— in treatment of syphilides, 320

— therapeutical actions of, 307

— value of, in lupus, 319

— in scrofula where cod liver oil and iodide of iron sometimes fail, 315

MUSTARD emetics in cholera, 78

N.

NERVOUS SYSTEM, injuries of, causing alopecia, 305

— — — soothing influence of turpentine on, 284

NEURALGIA, use of turpentine in, 293

NEUROTIC albuminuria and haematuria, Prof. Laycock on, 376

— origin of alopecia areata, 305

— theory of vascular bronchocele, 178

NITRITE OF AMYL, Dr. Lauder Brunton's accurate conception of action of, 413

νόσος ἱερὰ, epilepsy why so-called, 410

O.

ŒSOPHAGUS, malignant disease of, with pericarditis and pneumopericardium, 153

OIDIUM ALBICANS in croupous membrane, 121

OIL-INUNCTION practised by ancient physicians, 411

OPIUM in cholera, 78

ORGANIC VISCERAL DISEASES, characters of albuminuria in, 360

P.

PARACENTESIS in acute pleurisy, 205

— in chronic pleurisy, 205

— thoracis, according to Hippocrates 206

— — — in acute and chronic pleural effusions, 205

— — — in pleural effusions, acute and chronic, 205

PARESIS of lower limbs in vascular bronchocele, 279

PAROXYSMAL HÆMATINURIA, 367

— — — its relation to ague, 367

PATHOLOGY of vascular bronchocele and proptosis, 173

PERICARDITIS AND PNEUMO-PERICARDIUM in a case of malignant disease of œsophagus, 153

PERSESQUI-NITRATE OF IRON in choleraic diarrhoea, 80

PHLEGMASIA in pleurisy, 228

PHTHISIS and cholera, 72

— black, 243

— of coal-miners, 241

PHYSICAL SIGNS of pneumo-pericardium, 158

PLEURAL EFFUSION, character of cases urgently demanding thoracentesis, 218

— drugs found useful in, 222

VASCULAR BRONCHOCELE and exophthalmos, 169
 — — albuminuria in, 349
 — — case of, with albuminuria, cured, 354
 — — Virchow on, 263
 — atropia valuable in treatment of, 194
 — complexion in, 273
 — condition of heart in, 277
 — belladonna useful in, 275
 — digitalis useful in, 275
 — due to anaemia, 180
 — iodine injurious in treatment of, 195
 — iodine useless in, 279
 — often preceded by diarrhoea, 275
 — paroxysms of lower limbs in, 279
 — predisposing causes of, 274
 — sensation of heat in cases of, 273
 — splenic enlargement in, 187
 — sympathetic nervous system affected in, 271
 — treated by belladonna, 192

VASCULAR BRONCHOCELE, treated by iron, 192
 — with proptosis, Laycock's theory of, 186, 190
 VENÆSECTION in cholera, 80
 VENOUS OBSTRUCTION, swelled leg dependent on, 333
 VISUAL ACCOMMODATION unaffected in exophthalmos, 188
 VOMITING in cholera, 78

W.

WARBURTON BEGBIE's theory of cause of vascular bronchocele and exophthalmos, 195
 WILLIS, his adoption of Sylvius's chemiatric doctrine, 401
 WYMAN AND BOWDITCH's syringe in thoracentesis, 212

X.

Xeroderma, 126

